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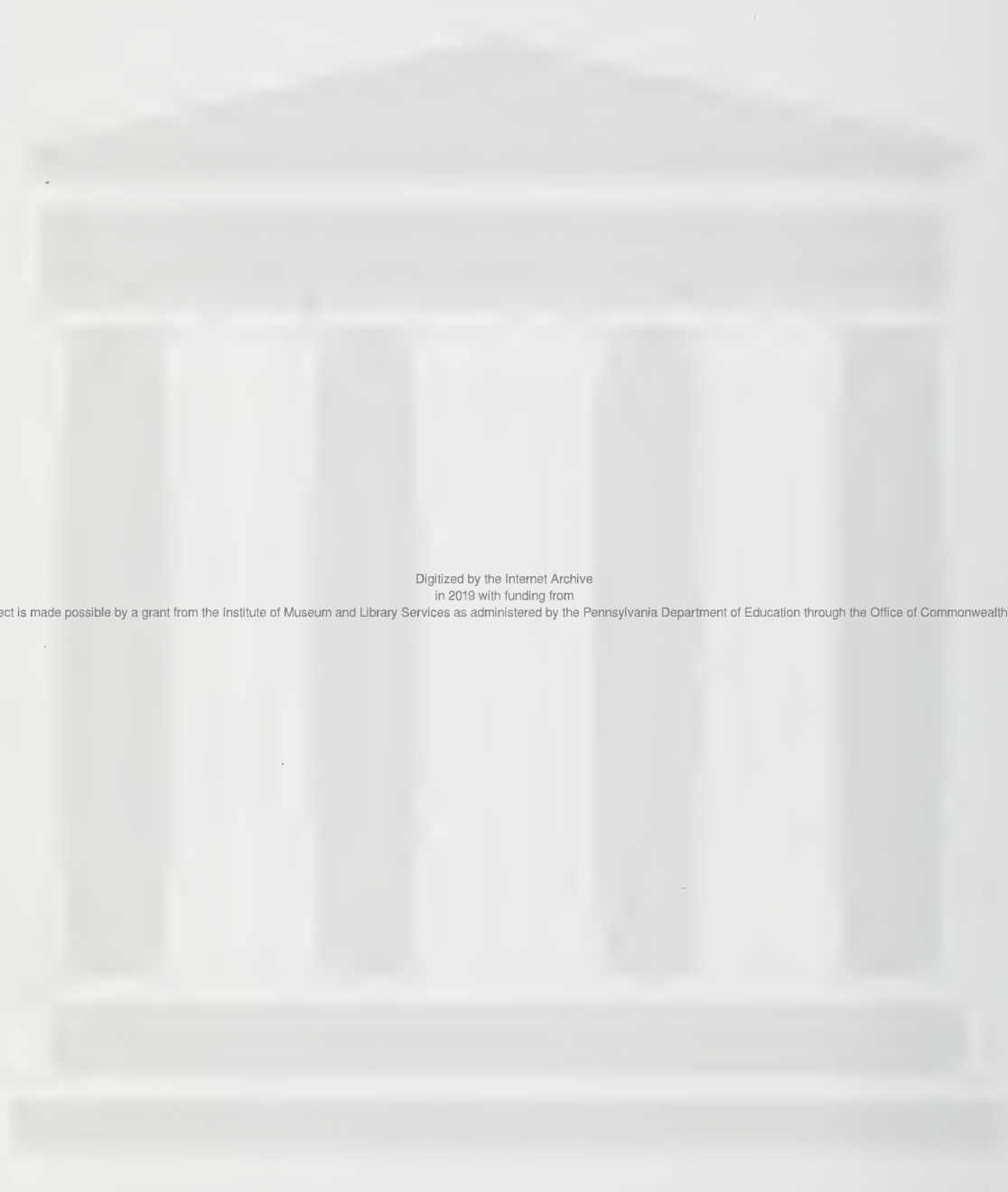
VOLUME



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BROADLAND BIRDS



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“From the green marshes of the stagnant brook,
The Bittern’s sullen shout the sedges shroud.”

BROADLAND BIRDS

BY

E. L. TURNER

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PREFACE

THIS is not a book for the scientist nor for the collector, but for the bird-lover, who may be either, or neither, or—such are the vagaries of human nature—all three. It does not pretend to be a textbook of ornithology, neither does it attempt to solve any of the problems of bird life. It is enough for me that birds ARE, for I feel with James Lane Allen that “birds never seem quite to belong to this world.” I am as shy of attempting to explain their actions from any mere human standpoint as I should be of interviewing an Archangel, if such a winged visitant should deign to alight on my island.

This book is just a record of my own personal observations of the birds I have lived with for twenty years. It has been twice thrown aside as useless, and only appears now because certain of my friends have for some years made my life a burden by their importunate demands for its publication.

At the outset I wish most emphatically to state that there is nothing on earth more irresponsible than a bird. I have never found two birds of the same species behave in the same manner; therefore, I hope that I have avoided the great pitfall of ornithologists—generalization from the behaviour of a few birds of one species. “Souvent femme varie” might be amended to “souvent les oiseaux varient.”

I am indebted to Messrs. T. C. and E. C. Jacks for permission to reproduce matter which has already appeared in the *British Bird Book*; and to Mr. H. F. Witherby for permission to embody in these pages portions of articles which have been printed in *British Birds*, and to the Proprietors of *Country Life*.

This book is dedicated to the living and the dead who have helped me.

214998

INTRODUCTION

And I shall have some peace there, for peace comes dropping slow,
Dropping from the veils of the morning to where the cricket sings;
There morning's all a glimmer, and noon a purple glow,
And evening full of the linnet's wings.

I will arise and go now, for always night and day
I hear lake water lapping with low sounds by the shore;
While I stand on the roadway, or on the pavements grey,
I hear it in the deep heart's core.

—W. B. YEATS.

THE life of an oyster is not necessarily as dull as it must appear to be to a free-swimming fish. There are advantages in being sessile. No doubt the oyster is *au fait* in all the scandals and petty incidents of its neighbours' lives and hears the gossip of the vast under-water world from the shoals of passing fish.

The circumstances of my life up to 1912 were such as to necessitate my being within easy reach of my home in Kent. In 1900 the need of an outdoor occupation led me to take up photography. Pictorial photography bored me, and in a lucky hour I met Richard Kearton, who turned my energies in the right direction, and for this I owe him a debt which can never be paid. This is why I, a born vagabond, came to live in the reed-beds, where I have remained sessile—more or less—ever since; picking up the gossip of birds and trying to learn something of the common everyday life of the most elusive of all the beautiful living things which make life a joy.

My first visits to the Broadland were made in yachts. On the second day of my first trip, in April, 1902, we moored in Deep Dyke, just off Hickling Broad. A man was busy in an eel-boat. I went to him and said: "Can you tell me where Alfred Nudd lives?" He straightened himself and replied: "I am Alfred Nudd. Yon goes a Hen Harrier." And that was my first introduction to Nudd, and to the Broadland birds. In those days I scarcely knew one wader from another, and as yachting was expensive and unsatisfactory from the photographer's point of view; I designed my little houseboat, "The Water-Rail," so named after the first marsh bird I ever photographed. She was launched at Hickling on March 18, 1905. The great business was to get her from Sutton Staithe, where she was built, to Hickling Broad. She was too wide to go under Ludham Bridge—not the ugly modern atrocity, but the old single, pointed brick arch. So she had to be hoisted on to a trolley and conveyed by road. Nothing in the Broadland is done in a hurry. Things have speeded up somewhat in twenty years, owing to motors, and parish councils, and women's institutes. But in 1905 the old slow ways were still good enough. It took two hours to hoist that houseboat on to a trolley by means of planks, ginger-beer boxes, and

human levers. During these hours Mr. and Mrs. M. C. H. Bird and I stood in a drizzling rain and watched the process. Then the procession started for Hickling. A light cart went ahead, carrying my new flat-bottomed boat, locally known as an eel-boat; then the triumphal trolley with the houseboat; while we followed in a dogcart. The actual launching did not take more than half an hour. By that time the rain had ceased and it was a perfectly still March evening. We got on board and were punted across by Alfred Nudd, and moored against the tiny island where some of the happiest days of my life have since been spent. The island was then a mere swamp, containing a few alders and willows which were originally planted to shelter the late E. T. Booth, who at one time camped out there; hence, until I took possession of it, the island was known as Booth's Hill. Those saplings have grown into trees, and the island is now highly civilized—or, rather, it has been since 1909, when I ceased regular photographic work in the Broadland. Prior to that year, the one month or so spent at Hickling each season was very strenuous. Whatever success I have attained in photography is due largely to Alfred Nudd and to the indefatigable James Vincent. Many a time I have inwardly cursed the latter when his cheerful voice roused me before dawn; and his "Are you ready, Miss?" frequently elicited but a sleepy response. However, I had to get up, and once out it was always worth the effort. Besides which, shy sitters are more easily dealt with in the early morning, especially if you can creep into your tent and get settled before sunrise. As a rule my tents were put up late in the evening; birds are at that time less liable to resent any change in their surroundings. Sometimes a heap of rough litter would be dumped down a week before I intended to photograph the nest. I remember once, in a moment of expansiveness, remarking to Vincent that the lack of four or five more inches in height had always been a grief to me. His instant reply was: "But only think, Miss, how much more litter it would have taken to cover you up!" Often my only concealment consisted of rough litter—the kind of rubbish heap which is so often a familiar object on the marshes. It was an uncomfortable way of hiding, but I shall have occasion to refer to this method of concealment later on. In the case of the Coot and Grebe nesting side by side, Nudd put the punt near their nests three weeks before I intended working on them. By dint of much care in this matter I can honestly say that I have never caused any bird that mattered to forsake its nest. Common species, such as Thrushes, Blackbirds, Sparrows and Buntings, will readily forsake, no matter what precautions the photographer may take. But Waders and rare birds breeding in secluded places far from man are not as a rule timid. I have scant patience with the photographer who sets up his tent and immediately gets into it, and then wonders if the bird forsakes her nest. These are the men who bring bird photography into ill repute. As a sport for its own sake, it is one of the best and most fascinating, because it deals with the life-history of the bird. As a mere money-making concern it is open to objection. But, after all, the damage which all the bird photographers in the British Isles may happen to do in one season is as nothing compared with the depredations of a single unscrupulous collector!

During the strenuous years, I had a man to look after the island and my boats, and to fetch supplies from the mainland. Cubit Nudd was my most faithful henchman, and a past-master in the art of sailing. When I first ventured out in my dinghy alone, he used to keep his eye (and my field-glasses) on me the whole time, and scold me on my return if I made mistakes—"You let her gybe at the corner, and I told you not to," or "You starved her; it wasn't no good a-starvin' of her like that, and



ALFRED NUDD AWAITS HIS TURN OF THE STEREOSCOPE.



THE SWANS BEING FED BY CUBIT NUDD.



THE ISLAND, THE HUT, AND "THE WATER-RAIL."



"NOW SILVER DUSK COMES SIFTING O'ER THE CHARMED WORLD."

then a luffin' up into the wind." These and such like criticisms were always my lot until I gained knowledge. Cubit took his responsibilities seriously. One day, when I was working at South Walsham, we sailed down early in the morning, arriving about 9 a.m. I was to have lunched with a friend at 1 o'clock, and with much difficulty I persuaded Cubit to accept the keeper's hospitality. I finished with one bird at 12.30, and started to transfer some of my gear to another bird which was nesting on the other side of a wide dyke close to South Walsham Hall. While crossing the planks across this dyke I swayed and fell in—why, I do not know, unless it was for want of food. On emerging from the dyke I was a sorry spectacle, as I had dropped down into mud above my knees and very little water. I managed to drag myself across the dyke by means of the plank, and on reaching the bank stood irresolute for some minutes, dripping mud in great black pools. I knew that Major and Mrs. Jary were not expected at the Hall till the next day; but, seeing smoke issuing from some of the chimneys, I found my way to the back-door and knocked. It was opened by the butler; all the other servants were sitting before a roast leg of mutton, the smell of which made me hungrier than ever. They all rose and stared at the dripping apparition, and it was some time before I could assure them of my respectability. Eventually, however, they helped me with right good will. After shedding my muddiest garments in the corridor, I mounted to the bathroom, still dripping mud as I went upstairs. The maids then provided me with clothing and afterwards fed me royally. As they were all tall and thin, and I am somewhat the reverse; what kind of a figure I cut can only be judged from the roars of laughter which greeted me later in the evening, when I called on some friends in a wherry at Potter Heigham, while Cubit was getting the dinghy through the bridge. But Cubit, when he returned for his dinner, was too polite even to smile. Besides which, he had received a shock, for as he came over the plank to find me he saw my wet and scattered gear, and hurried up the glade to the house. I saw him and his expression a long way off, and made signs to him from the window that I was all right. When we met, he exclaimed: "You *made* me go away, but I'll never let you out of my sight again as long as I've got to look after you." I think he was always expecting me to come to a bad end; at any rate, he was a super-pessimist! One evening, while I was preparing for an early start next day, he handed me a telegram announcing the fact that, a nest upon which I had set my heart at Ranworth was destroyed. "Ah!" said he, "I knowed as how you would have bad luck; you was a-singin' while you was a-dewelopin' this mornin'."

The day after my plunge we returned to South Walsham and, before settling down to work, I exchanged my borrowed clothes for my own, which had been washed and dried. After that, Major Jary placed at my disposal his old houseboat, which lay moored in one of the most beautiful corners of South Walsham Inner Broad; this did away with the fatigue of daily journeys to and fro.

From both landowners and marshmen I have always received kindness and help. At first the native population of Hickling looked upon me as a harmless lunatic, and spoke of me as "that ther mad nat-turialist over the water." One woman once asked a friend of mine: "Why *does* she live on a boat like that when she might be comfortably in her own home?" Now, after twenty years, they take me for granted, and even look upon me as one of their chief shows.

They are a race apart, these Broadsmen; slow to speak, reserved, courteous—even when drunk. They may appear simple, but they are shrewd judges of character,

INTRODUCTION

and can give you in a few vivid sentences their impression of a celebrity, couched in the familiar clipped dialect with the lilt at the end of a sentence. Traces of superstition still linger in the minds of some; and no wonder! You must live in the reed-beds if you would realize the witchery of the marshes and their mystery.

Just what it is in the marshland that grips the imagination and casts a spell over its lovers I do not know—we none of us know. It is a land of wide wind-swept spaces and far-flung horizons; of mystic nights and great silences. In the daytime it is an ever-shifting kaleidoscope of colour; every hour of the day and every day in the year brings its own quota of light and colour and sound. Blue and gold in the early spring and a riot of sound. Sparkling and vivid in the summer when the Reed Warblers alone are still in full song. Burnished copper in the autumn, and silent except for some passing migrant. Grey—oh, how grey on a winter's afternoon when there is no sun to gild the dead reeds, and when:

The sedge is withered from the lake,
And no birds sing.

Each mood has its charm and is capable of infinite variations.

But it is the night that is so full of mystery in this land of big spaces. I have never forgotten my feeling of awe when I first experienced a Broadland night. It was in late April, and the evening was clear and cold; there was nothing to obstruct the view or darken the sky. The great overhanging dome was studded with brilliant stars, and I seemed also to be treading them underfoot. The water was smooth as a sheet of glass, and I stood, as it were, between two heavens, as every star over my head was reflected in the water at my feet; there was not a breath of air nor a ripple to dim their brightness. I have repeated this experience many times since, and it is one that never fails to soothe. On April nights I look up from my cabin window right into the great lonely square of Pegasus, and while wondering what goes on within the confines of that immense space, I fall asleep. I have sometimes watched through almost the whole of a short summer night succeeding a hot day, when light mists suddenly begin to steal over the land. They come almost imperceptibly at first; gradually a filmy curtain of fog will roll up from the sea, detached portions of which float low down over the wide expanse of marsh and mere till lost in "the beyond," only to be succeeded by more wraiths. Sometimes several of these irregular, elongated, misty shapes mingle and assume curious forms, for all the world like wraiths of departed Vikings, ghostly armies engaged in shadowy warfare. At first the sky will remain clear and starlit, when by contrast it resembles a great metallic dome gradually closing down upon the universe. But by-and-by the fog thickens, the moving misty shapes disappear, the dome is blotted out, marsh and mere vanish, and the whole world about me is wrapped in an impenetrable veil. The first oncoming of fog produces an unearthly silence; even the garrulous Coot and Moor-hen seem depressed. But by-and-by some wild bird will utter a muffled cry, which is taken up by one after another. No wonder that in olden times some belated fenman stumbling home through the fog, or lying sleepless in the dawn, should cross himself and "think about making his will," when the weird silence is suddenly broken by the guttural cry or ill-omened booming of the Bittern. In these days the wail of the Stone Curlew, as well as the plaintive cry of the Lapwing, would reach him through the mist. There is a fearful joy about such nights. For one thing, they are rare; it is a great mistake to imagine that the marshes are always enveloped in fog; they are

too wind-swept for that. But, apart from their rarity, they always produce in me that feeling of affinity with the seething wild life hidden behind the curtain of mist; and also with that other life behind the veil which will be lifted one day.

Then there are tempestuous nights following the stormy days, when "wind-swept Hickling" frets and chafes at its confines and piles up banks of creamy foam in odd corners. As a rule the wind dies down at sunset, but not always. Even when it does, an hour or two's calm may be succeeded by yet increasing gales, as if these had but gathered renewed energy from their short repose. I can sleep through tempestuous nights, unless the wind is lumpy and hurls itself at my boat in short irregular gusts. Continuous wind soothes me to sleep. It is the still nights that produce unrest, especially after weeks of raging gales such as occur some time between early April and late June. When July comes in, hot and calm and peaceful, sleep holds aloof. The July silence becomes unbearable when one is alone. So still is it that a dog barking half a mile away sounds as if it were close at hand. Then the faint squeak of young water voles (a sound which it took me some years to identify) and the soft gurgling caused by their diving and swimming seem riotous noises. Even the Reed Warblers are silent between 10 p.m. and 1 a.m. in July. All the resident Lapwings and most of the Redshanks have moved on; the few remaining Redshanks only call early in the morning and after sunset, when they take short restless flights to and fro in small parties before settling down for the night. It is a silence that can be felt, and produces in me a curious mood of intense mental concentration accompanied by physical languor which holds my body in thrall while my mind is alert. If only I could write all I think and feel during those wakeful hours:

When I behold upon the night's starred face
Huge cloudy symbols of a high romance.

But I cannot; I am under a spell!

About 1 a.m. (solar time) the spell is broken; there is a faint stirring, and the teeming life around me, which has been wrapped in the mystery of sleep, stirs ever so faintly. The young Grebes in the reeds a few yards away rouse up and pipe their silvery treble notes; the roll-call of the Moor-hens echoes round the Broad, as if they changed guard in the early morning. Coots chatter and subside; they have not yet begun to pack, and rush tumultuously over the water as is their habit later on. Soon all is again quiet, except for the generous outpouring of the Reed Warblers; the other birds settle down for another short period of sleep, and so do I. Then comes dawn, and the great awakening, and the high adventure of a new day.

This brief outline of my life in the Broadland would not be complete without some mention of my dogs. There have been, alas! too many of them. Dinah, which faithfully guarded and restrained from mischief any young thing committed to her care, from squirrels to Short-eared Owls. Biddy, which hated males, both human and canine, and always retired to the glory hole with the saucepans during a thunderstorm. Gyp, the most beautiful and the shortest-lived of them all. Judy, whose chief excitement was chasing the fish round my bay. Bogey, my present companion, whose beauty and intriguing ways win most hearts, and a puppy which, as she came from a village called Cranford, was originally called "Miss Mattie." But as she developed such originality and independence of character and utter fearlessness I soon called her after a present-day celebrity. At nine weeks old she scrambled on to the gunwale of my small sailing boat, poised motionless for an instant surveying

the water, and then deliberately plunged in and swam away from the boat with great energy. I could do nothing but come up into the wind and wait. After describing a wide circle, she returned at my frantic calls, a little breathless but very self-satisfied. As this was her first sail, and she was only nine weeks old and about the size of a penny roll, I had not tethered her. All these were, and are, black and tan terriers; the now uncommon, but most companionable and game breed imaginable, and the most suitable for house dogs because of their short black coats and innate good manners. Descendants of one of the oldest English breeds, they deserve to be rescued from oblivion. Besides these terriers, I have had a retriever of very uncertain temper, called Sweep, which was devoted to Cubit; and a red setter named Dewé, of mild disposition and unsurpassed dignity. These have one and all shared and loved my wild life and relieved its solitude.

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BROADLAND BIRDS

I

THE BITTERN

BOTAURUS STELLARIS (Linn.).

“ The smell of the night's in the air
The sound of the night on the wind,
And a Bittern booms in the distant fen,
Where, far from the hurrying haunts of men,
It lingers, the last of its kind.”

SEVERAL interesting obituary notices have been written of the Bittern as a British breeding species, but it is only necessary here to sum up these in the words of the late Thomas Southwell, whose death unfortunately occurred two years before the Bittern returned to its old nesting haunts.

In a footnote of his edition of Sir Thomas Browne's *Notes and Letters on the Natural History of Norfolk*,* Mr. Southwell remarks: “ The Bittern is one of the birds once common enough in Norfolk, which in the present day is only a winter and spring migrant. The last eggs of the Bittern were taken in this county on March 30, 1868; the last ‘ boom ’ of a resident was heard in May, 1886, in the August of which year a young female was killed at Reedham with down still adhering to its feathers; this was probably the last Norfolk-bred Bittern.” Mr. Southwell goes on to describe the boom of the Bittern as a “ once familiar sound, but one which will probably never again be heard here under purely normal conditions.”

When the exciting hunt after the young Bittern depicted here ended in a successful capture, my one regret as I gloated over the beautiful bird was that no telegram could penetrate “ behind the veil,” or bring back the one man who would most have cared about seeing it—the friend who perhaps more than any of my numerous circle of ornithological friends did his best to encourage my work. In 1907, when I was worrying through a tedious convalescence, Mr. Southwell wrote: “ I can sympathize, for I too am not well, but then there are seventy-six good reasons for my indisposition.”

Lubbock, in his *Fauna of Norfolk*, published in 1845, when remarking on the Bittern, says: “ It has decreased much in numbers in the last twenty years. I remember when the birds could be found with certainty in the extensive tracts of reeds about Hickling Broad and Heigham Sounds. Four or five might be seen in a morning.”† He seems to have accounted for eleven himself in 1819. From the same source we gather that, prior to 1843, a party of fen shooters would kill from twenty to thirty Bitterns in one

* Pp. 17-18.

† New edition, published with Notes by Thomas Southwell, 1879, p. 87.

morning. This ruthless persecution is surely sufficient in itself to account for the practical extinction of the Bittern in the fenlands. I do not believe that the decrease of this bird as a breeding species is due primarily to extensive drainage, and the consequent reclamation of the marshes and reed-beds. There are extensive tracts of reed-beds left in the Broadland where the Bittern would still nest, if only the numbers of birds which come over every winter were unmolested and allowed to survive.

In its Continental haunts it is by no means particular about thick cover; and in Holland, which is efficiently drained, it does not always nest in secluded places, for Mr. E. W. Wade, who successfully photographed young in the nest, tells us that: "If the haunt of the Bittern is in the neighbourhood of thick reeds, the nest will be found there, but if none are present an old bed of dead reeds or bull-rushes (*i.e.*, reed mace), in which the colour of the bird makes it almost invisible, is chosen. Here the uncovered nest is easily seen, sometimes at a distance of 20 feet, but until the bird leaves it, it is perfectly concealed."*

In 1911 I did not repair to my houseboat until July 5. On the 7th, while getting my hand in at sailing, I happened to run close to a reed-bed near which an angler friend from a distance was fishing, with his back to me. He removed his pipe and remarked casually: "Quite like old times, Miss, to have Bitterns booming round and nesting." I immediately fetched up alongside and made further enquiries. Finding he had no definite knowledge of the exact locality, I asked him to obtain certain particulars as soon as possible. He returned the following day with more details, and at 10 a.m., Vincent and I set off to obtain permission from the powers that be to hunt for the nest. The particular "power" concerned was just starting off in his motor, accompanied by the Rev. M. C. H. Bird. Permission was readily given, accompanied by gibes from both: "You don't know what you're in for," "you'll never find it," and "it's all a myth." I flung one parting shot at them as we cycled off: "If it's there to be found, Vincent and I will find it." This vain boast was ultimately fulfilled, though, curiously enough, it was Mr. Bird who spotted the *nest* some days later, while we found the *bird* before nightfall.

The never-to-be-forgotten July 8 was a terribly hot day, and I cannot say that either of us felt particularly hopeful as we climbed to the ridge of an old boathouse at 2 p.m., armed with newspapers to protect the backs of our necks from the blazing sun. From our vantage-point we commanded a view over a wide stretch of reed-bed, in the vicinity of which the Bitterns were said to be seen daily. After about three-quarters of an hour's watching, I suddenly saw a large bright brown bird rise from the reeds on our left, and exclaimed, "Look!" "That's the Bittern," said Vincent; and jumping to our feet, we had our first prolonged view of the bird, as with slow heavy flight she swept across the marsh. In the brilliant sunshine and against a background of green trees, the bird appeared to be a bright cinnamon brown; her slow flapping flight resembled that of a Short-eared Owl, while in shape she was like a Heron; as with head thrust back, straight keel-shaped breast-bone in advance, and long legs stretched out behind, she seemed to drift lazily along, and finally dropped into a dense reed-bed some distance away. We kept our eyes carefully on this spot for about a quarter of an hour, after which the Bittern rose and returned in a leisurely manner to the place where I had first seen her get up. She repeated this journey to and fro three times before 4.30.

* *British Birds*, vol. i., p. 333.

We next had to decide which of these two spots contained the nest, and which was the feeding-ground only. From the nature of the marsh we inferred that the nest, or young, must be somewhere near the spot where we saw the bird first drop; and from her manner of working we decided in our own minds that the young were scattered. We then moved to a big alder tree, up which Vincent and another watcher climbed, dragging me behind them. From this, to me, very uncomfortable position, we commanded a closer view of the reed-bed, and again saw the Bittern drop down into its depths. At the end of an hour I feebly protested that my position was unendurable, so they lowered me to a branch upon which I could stand with comparative ease, while Vincent plunged into the reed-bed. We immediately lost sight of him, and could only judge of his whereabouts by the clouds of pollen which rose at intervals from the marsh; but that he was hot upon the trail we felt certain, for the old bird flew up with hoarse "honking" call-notes six or seven times, took short flights and dropped again. Presently Vincent emerged, panting and wet and unsuccessful, so we adjourned for tea.

From 6.30 to 7.30 we watched from a bank, but as there was no sign of any Bittern we both plunged into the reed-bed, determined to make a thorough search before dark. The water was above our knees, and the reeds were so dense that neither of us could see the other when a few yards apart. We soon put up the old bird, and then Vincent suggested that I should stand still while he worked in circles round me. At last came a joyful shout—"I've got one youngster; come quick"—and I pressed forward headlong in the direction of his voice. How we gloated over our prize as he stood there, transformed into the resemblance of a bunch of reeds! With long pointed bill thrust straight upwards, bright eyes half-closed, the feathers of his head and neck smoothed downwards, so that their alternate dark and light markings blended absolutely with the reeds; the bird's bulky body, owing to its broken-up colouring, seemed absolutely to "melt" into its surroundings; while the big green legs and feet, being partially submerged in water, might easily have been mistaken for reed-stalks.

It was now 8.30 and the sun was setting. What was to be done with the young Bittern now we had found him? I insisted on some third person seeing our captive lest the unbelieving world should scoff; so I carried the wild, beautiful thing to dry land. This was no easy task, for I was almost too excited to hold him, and he could not be tucked under my arm because of sundry fierce thrusts upwards which he made with his bill. We had for the moment lost our "sense of direction," but guided by the sunset glow, we stumbled on and soon hit our trail and emerged triumphant. Then we stowed the bird safely away for the night; and by alternate rowing, cycling, and rowing returned home, finally reaching my houseboat at 10.15. I changed into dry clothes, and, in spite of considerable anxiety, slept soundly until 2 a.m.

We started away again at 3 o'clock, this time provided with wading-boots, cameras, and other necessities—as much as two bicycles could possibly carry. By 4 a.m. I had the Bittern once more in my arms safe and sound. When I put him on the ground he stalked off in a solemn and what was intended to be a dignified manner. In reality he appeared very ludicrous; for with big green legs and splayed feet, drooping wings and head held high in the air, he looked like a tall, gaunt old woman masquerading in bird's attire. But when put back to his natural surroundings, one saw how this seemingly ludicrous attitude was an instinctive pose tending to self-preservation, and rendering him more or less inconspicuous.

It seems curious that so big a bird should be able to support itself on the slender

reed-stems; but we had, to a great extent, been guided to the vicinity of the young by the bent and broken reeds, many of them withered and dying, but unmistakable evidence of the Bittern's whereabouts. The young bird emitted a curious bubbling note; this can easily be imitated by blowing through a straw into a glass of water, and is quite distinct from the hoarse call-note of the adult bird, which is not unlike that of the Great Crested Grebe, but shorter and sharper. Having finished photographing the young Bittern, we hunted round after the nest; but being anxious for the safety of the bird which now began to "bubble" in a way likely to attract his parents, we gave up the search and left him in peace. His method of defence was curious. He would crouch low down, fluffing out his feathers into a kind of ruff; then suddenly shoot upwards, rising to his full height. This heaving up and down was not unlike that of a young Cuckoo when molested. Except for the undeveloped wing-coverts and quills, the young Bittern seemed to be fully feathered, though of course, unable to fly. In general coloration he was perhaps rather brighter than the adult bird, but the barred markings on the wing were not so distinct. We tried to feed him by opening his bill and thrusting food into his capacious pouch. This, however, he promptly disgorged.

On July 17 we made a thorough search for the nest. There were five of us, and by working abreast through the reed-bed from dyke to dyke our efforts were crowned with success, the lucky finder in this instance being the Rev. M. C. H. Bird. The nest was scarcely a dozen yards away from the spot where Vincent had first discovered the young bird. It was composed almost entirely of broken reed-stalks, and measured only fourteen inches across the top, though much wider at the water's edge. No doubt it had been considerably reduced and trampled down by the nestlings; for judging from the inch-deep *débris* of discarded feather-sheaths, more than one inmate must have been successfully reared. In addition the nest contained bits of down, two or three small striped feathers, and a few fish-scales. We saw nothing of either old or young birds in the nesting area until about 6 p.m., when one of the adult birds rose from a neighbouring reed-bed and dropped once more into the old feeding ground. Being disturbed by a passing yacht, she flew slowly back again, passing so close to me that I could have photographed her on the wing; but alas my camera was reposing on the nest some distance away! She then dropped into a distant reed-bed where, several days afterwards, young Bitterns were flushed twice in succession at such short intervals, that one may safely infer they were not one and the same bird, but two separate young ones.

The following dates were supplied to me by the watcher who took an interest in these Bitterns from the time of their arrival. They were first seen during the third week in December, 1910; there were then three adult birds. Booming began on January 26, 1911, and was continuous both night and day during March, April, and May, until June 4, when it ceased.

As regards the young Bitterns, one bird was seen near the nesting area in September, and later on two were flushed close together. The adults were seen during November and December. Booming began again in January, 1912, and continued till June. Although no actual nest has been discovered in the original area since 1911, there is no doubt that two if not three pairs have bred there ever since. Now, after thirteen years have elapsed since the finding of the first young bird, Bitterns have gradually increased in number and spread over a great portion of the Broadland. The Great War was a godsend to them, because it kept the majority of gunners and collectors



CAMOUFLAGE: TURNING ITSELF INTO THE
SEMBLANCE OF A REED.



THE 1911 BITTERN: THE CROUCH BEFORE THE
UPWARD SPRING.



HOW THE BITTERN DEFENDS ITSELF : THE UPWARD THRUST OF THE YOUNG BIRD.

busy elsewhere. The deep resonant challenge of Bittern calling to Bittern across the great wide silence of the misty marshes heralding the gorgeous pageant of a Broadland dawn is now a familiar sound in many areas. Nevertheless, in Norfolk alone, Mr. Riviere collected evidence of fifteen Bitterns having been shot between midsummer 1917 and midsummer 1918. If this bird is to maintain in peace time the steady increase in numbers which it attained during the war, public opinion must be enlisted on its side. Somewhere Ruskin wrote: "God has given us the earth for our life. It is a great entail." It is now the duty of everybody to guard this recovered inheritance which our forefathers so shockingly wasted.

Between 1911 and 1917 no nest of the Bittern was actually seen, but that year a nest with two half-fledged young was found some miles from the original area. In 1918 I knew of seven nests within an area of four square miles, making nine in all, and in 1923 there were eleven.

The eggs may be found late in March; but if the first nests come to grief a second clutch will be laid, so that sometimes eggs are found up to the end of June. They vary in number from three to six eggs, but I have only once seen a clutch of six; five seems to be the usual number. In general colouring they are a dull olive brown, and very much resemble the eggs of the Pheasant. In length the Bittern's eggs vary from $2\frac{1}{2}$ inches to $1\frac{7}{8}$ inches, and in width from $1\frac{1}{3}\frac{1}{2}$ to $1\frac{1}{3}\frac{3}{4}$ inches. Some of the eggs are always more incubated than others, as the Bittern begins to brood as soon as the first egg is laid.

The following is a list of dates for some of the 1918-1919 nests:

1918.

- 1st pair. March 24.—Four eggs, two hatched by April 1; young drowned out, April 16.
 April 28.—Second clutch of two eggs. Nest and eggs destroyed, cause unknown, May 16.
- 2nd pair. Nest found April 3.—Four eggs, two only hatched.
- 3rd pair. Nest found May 19.—Five eggs, three hatched by May 27.
- 4th pair. Nest found June 20.—Two nearly fledged young.

1919.

- 1st nest. April 8, one egg; April 17, five eggs. First young hatched, May 3; last young out May 8. All five hatched.
- 2nd nest. Found April 17, five eggs. One young out on 18th, and one chipping. All out when nest was next visited on April 26.
- 3rd nest. Found on April 17, five eggs; all out by May 11.
- 4th nest. April 26.—Two eggs, and two more later on.
 May 4.—Six eggs.
 May 25.—Three young hatched.
 May 27.—Five young hatched out of six eggs.

This last nest was in thin sedge, not more than 18 or 20 inches high, and so sparse that I was able to photograph the nest and eggs through the surrounding vegetation. It was found accidentally by a man who was marsh mowing, and who did not know what kind of a nest it was.

With the exception of the one already referred to, all the nests I have seen were in more or less dense reed-beds. Sometimes they are placed not far from what in the Broadland is always spoken of as the "Rond" or "Rand"—the swampy margin of a river or broad, the boggy ground between the water and the river wall. The Bittern's nest is small for the size of the bird, and not unlike that of a Moor-hen. It is usually built of dead reeds, and sometimes, especially towards the end of May, a great deal of feather scale is mixed in with the reed lining as the nestlings resort to it continually. The nest found amongst sedges was made of dead reed and sedge. As the nest is generally placed amongst wet surroundings, it is used by the young birds up to the time they are fully fledged. After a few days only, what was once a narrow and shallow nest, is trampled down till it becomes a platform of perhaps thirty inches in diameter. Even when almost ready to fly the young birds may be found standing on the nest waiting to be fed. There are many "runs" leading to the nest and several flattened-out places where the birds rest; some of these are like woven reed mats about six inches square. The runs are not trampled paths such as a Duck or a Wader makes to her nest, but ill-defined tracks radiating from the nest in all directions. Here and there, in more or less regular lines, you are able to trace a Bittern's steps by means of bent and broken reeds.

Bitterns are more or less gregarious, or at any rate sociable in their habits; several nests may be found in one small reed-bed. They do not require a big feeding area in order to supply the needs of the young. Such food as Bitterns require is always plentiful in a fen country. This consists of fish, water voles, shrews, newts and water-beetles; occasionally small birds may be devoured. Stevenson mentions one which had swallowed a Water-rail whole.* Another has been known to devour a 14-inch pike.† A 1430 poem makes mention of "The Bootore that etith the great eel." Sir Thomas Browne kept a Bittern in captivity in his own garden for "2 yeares, feeding it with fish and mice and frogges, in defect whereof making a scrape from sparrows and small birds, the bitour made shift to maintaine herself upon them."‡

There is a considerable difference between the young Bitterns when hatched, but as they all hatch within three or four days, it seems as if the old bird begins to incubate as soon as the first egg is laid, and that the eggs are not laid on alternate days, as I have stated elsewhere.§

The Bittern does not always trouble about the later eggs. In 1918 there were several left derelict in the various nests I saw. These, when broken, contained perfectly formed young. Frequently also the youngest Bittern, being so much smaller and weaker than his brethren, comes to grief. The young are very strong and active when two or three days old, and also very pugnacious.

From the fact that the female does not usually bring off the entire clutch, and also because the male booms most of the day some distance from the nest, I doubt very much whether the males take any share in feeding the young. Sometimes when the young are a week or ten days old, the males leave the immediate vicinity of the nest, and boom from reed-beds much further away.

The first time I saw young Bitterns in the nest was on May 27, 1918; only three out of five eggs were hatched. One nestling was scarcely dry, one was unable (or un-

* *Birds of Norfolk*, vol. ii., p. 172.

† A. H. Patterson, *Notes of an East Coast Naturalist*, p. 29.

‡ *Notes on the Natural History of Norfolk*, p. 17.

§ *Transactions of the Norfolk and Norwich Society*, 1918.

willing) to sit up, but the eldest showed vivacity enough for all three ! It must have been four or five days old, and stood 6 inches high.

Though I was worked up to a high pitch of enthusiasm at the thought of fulfilling one ornithological dream of a lifetime, my first impulse on seeing this dream in the flesh was to collapse into the reeds and laugh. The young Bittern was the quaintest little ornithological oddity I had ever seen; he looked more like a small animated golliwog than anything else. A halo of light tan-coloured down stuck out all round his head, and his big greenish-blue eyes glared defiance. He stood up, straddled across his brethren and made vigorous thrusts at us with his bill. He practised all the arts of self-defence peculiar to his kind. He would crouch down and then suddenly shoot up to his full height; or throwing himself on his back, would kick at us with his splay feet, which seemed several sizes too large for him. The long silky down enveloping his body seemed to tremble with defiance. This down is nearly an inch in length; it is very fine in texture, and blows all over the nestling's face in a high wind. It does not form a complete covering, but follows the line of the feather-tracts; neither does it conceal the wonderful blue skin. The long thick ungainly legs supporting a curiously attenuated body are redeemed from ugliness by their brilliant colouring. The whole of the skin showing through the bare patches is bluish in colour. The gape and legs are a deeper blue. The blue colour on the body depends for its brilliancy on the angle of light. I have never seen any mounted specimen of a Bittern where the skin colouring was correct. The legs of stuffed birds are always too green and the eyes also; for in nature, even the eyes in the young bird are at times intensely blue. In certain lights the skin colouring is iridescent; ordinarily it is like the underside of the young reeds when the sunlight filters through them, and has a bloom and sheen like a sunlit field of oats at midsummer. The long soft, wavy down softens to a great extent the young Bittern's ungainly body, and the elusive bloom throws a glamour over what would otherwise be bare and ugly skin and bone.

A week later, the down of these three young birds had changed to marabout brown, and their bodies bristled with sprouting quills; they were all three pugnacious and made a loud clamour, the sound produced being something between a quack and a grunt.

On May 27, 1919, I saw the youngest complete family I had as yet seen. They looked like some uncanny prehistoric link between the reptile and the bird. The extraordinary brilliance of the blue skin when seen in bright sunlight only accentuated their likeness to a reptile.

I was much struck by the way in which these nestlings used their "hands"—by hands I mean the metacarpus. The youngest bird used them when moving across the nest. The older nestlings supported themselves also with their hands when standing upright against the reeds, the thumb in each case being extended. As I approached the nest the female Bittern was just flying away in search of food. I walked swiftly to the young and found the smallest one wrestling with an eel about seven inches long. The tail was hanging out of his beak, and he made great efforts to swallow the loose end of his meal before retreating. In order to do this he crouched down in the nest, supporting himself, so to speak, "on all fours," by extending his wings and turning them outwards towards me, and pressing his "hands" hard into the nest. I was more than ever impressed with the abnormal appearance of a newly hatched Bittern.

These were the docile lot of youngsters on that first day, and allowed themselves

to be handled freely ! Two days later they were a fine healthy set of nestlings, still easy to handle, and showing no disposition to fight. A week later (June 7), all five hastily retreated from the nest one after the other, running rapidly through a little path which led from the nest to thick cover. We retrieved them one by one, and when brought back they evinced considerable pugnacity. Still I was possessed with the feeling that I was handling something other than a bird, and as each in turn darted a vicious dig at my hand or eyes I almost expected to see a forked tongue thrust forth. The marsh was quite dry when I photographed them on May 28; but on June 7 the water had risen considerably, so that it was almost up to my knees. The nest however was safe, as the water had reached its highest level, and would fall during the next few days.

After the first week it is very difficult to round up the young. At the slightest approach of danger they walk off and hide in the reeds, where their soft brown and blue-green colouring harmonizes completely with the dull brown sheaths of the reeds, and with the young reeds themselves. Nature and inherited instinct have taught the young Bitterns how to hide. The nestlings, even when only a few days old, will conceal themselves perfectly by just standing still. They turn themselves into the likeness of reeds by drawing up their thin bodies, and pointing their beaks skywards. Thus, in a few seconds, they melt completely into their surroundings, while the intruder meanwhile is splashing wearily through tangled sedges and reeds which may be ankle, or even knee-deep in water. If the old Bittern is anywhere near, she utters a warning croak, and disperses the brood long before you are within sight of the nest. When full grown and yet unable to fly, the young frequent the more open spots amidst the reeds, and when being fed betray their whereabouts by the loud clamour they make. It is quite ten weeks from the time they are hatched before they can fly.

It seems to me that the entire work of feeding the young is done by the female. On an average they are fed every forty to eighty minutes from dawn till dusk. During the greater part of the day and far into the night the males will be booming; you hear them in their separate areas, while the females are journeying to and fro. Consequently the hen works very hard, as her hunting ground is usually some little distance from the nest. She is not at all shy when intent on collecting supplies for a clamorous brood. I have seen her drop down time after time on a rand where two men were marsh-mowing. She has regular feeding grounds and will visit one area for days together, returning regularly hour after hour to the same spot. Favourite hunting grounds are old "delfways"—an ancient Norfolk word for partially silted up ditches generally edged with reeds which form a screen along their whole length; you may sometimes hear a Bittern splashing about in these sloppy ditches. They are largely influenced in their choice of a hunting and feeding ground by the conditions of the marshes; a rise of a few inches in the level of the water will drive them to other and shallower places. Wind, too, affects the Bittern's daily routine. On fairly calm days they fly at a fair height to and from the nest; but on windy days it is difficult to catch a glimpse of the birds, as they then skim over the tops of the reeds, where their colours harmonize completely with the brown belt of last year's growth of feathery reed, which is not as yet hidden by the new young green growth.

The call-note of the Bittern of both sexes is a raucous "aark," "aark," sometimes "auk," "auk." The female mutters this to herself as she flies to and from the nest, and if she is annoyed or interrupted, the sound is intensified. Maybe the note is

used to round up the straying young; it is certainly uttered as a warning, bidding them disperse and hide. When returning with supplies for the nursery, the old bird does not alight close to the nest but describes half a circle round it, then drops down somewhere near and walks the rest of the way. As the Bittern returns with supplies for the brood, you can see her gullet distended with the result of her hunting. She can evidently stow away a great deal of food, for none that I have seen given to the young is partially digested.

The young are fed largely on fish. Eels seem to be swallowed whole, or in halves, according to the size of the eel and the capacity of the bird. One half-grown Bittern I picked up in the reeds promptly disgorged one eel, 9 inches long, and 7 inches of another eel. The youngest of a brood of three on another occasion regurgitated a nice fillet of fish which had been beautifully prepared for him; the gullet of the young Bittern on these occasions swells out to the size of a fowl's egg. One realizes, then, that the capacity for storing away food in the adult bird must be considerable. A man at Sutton told me recently that he picked up three young frogs from one nest, each one nipped and flattened out on one side.

The male Bittern is seen very little during the breeding season. I have seen him occasionally join his mate and accompany her to the feeding ground if she happens to pass over him on her way to and from the nest; but these episodes are rare, and he usually returns quickly to his own place. During May and early June, I have sometimes seen from four to six Bitterns, mostly males, playing together in the air over a given spot. These displays take place at various hours, but generally in the early morning and towards the evening. The Bitterns circle round each other soaring like Gulls; sometimes they shoot rapidly upwards and plane down. When they disperse, I have several times seen two of them rise high in the air and make a bee-line for another nesting area three miles away; the others also return to distant spots. It would seem as if Bitterns met in certain places in order to indulge in these aerial displays. Sometimes one or two females join in this social dance, but as these take place chiefly in the middle of the breeding season, the hard worked females cannot devote much time to amusement. Similar displays have been reported to me from other breeding centres, where the Bittern has increased in numbers. They cease, however, towards the end of June, when the males' booming becomes uncertain and broken. These displays were most marked during May and early June in 1922. During the abnormally cold spring of 1923 I did not once witness these dances in the air.

Occasionally two Bitterns will fight in the air. They then mount in circles and endeavour to swoop down at one another. In these instances one male may be merely driving another away from his breeding area. Undoubtedly Bitterns could put up a considerable fight if they liked, for both beak and claws are powerful weapons. So far I have only seen these fights when the breeding season is at its height, so that they are not part of the spring display. On June 9, 1918, I watched a fight between a Bittern and a Marsh Harrier. I suppose no living ornithologist has hitherto seen such a thrilling sight in the British Isles. I was rather out of heart after long and fruitless attempt to photograph a Bittern on the wing, and sat in my boat feeling I should like to throw my camera overboard. This attitude of extreme dejection gave place to one of absorbed interest. Looking up I saw a Marsh Harrier approaching the Bittern's nesting area. Slowly and majestically the Harrier swept onwards, ruthlessly disregarding the dismay his presence created amongst the smaller birds of the

neighbourhood. Suddenly a Bittern shot up from the reed-bed, and the Harrier only avoided being impaled on the point of the adversary's beak by a dexterous twist. It was a clear June evening, the marshes were bathed in golden light, and everything was sharp and clean cut. High in the air the two birds turned and twisted, the one to all appearances so immeasurably stronger than the other. It looked a very unequal fight. There never seems anything very tangible about Bitterns on the wing, their flight is slow and stately, noiseless almost as that of an Owl; but this bird was transformed into a whirling mass of golden-brown. Furiously it bore down upon its dusky adversary, and its valour was more than a match for the enemy, for the Harrier sheered off closely pursued by the Bittern until both birds were out of sight. By-and-by the Bittern returned and dropped down near the nest. Almost every day the Marsh Harrier worked up and down that reed-bed, he was always *the* dark and sinister shadow overhanging the Bitterns' home, and may have been the culprit which destroyed a second nest in that area. It is well that the young can hide themselves so completely, as they are left alone in the nest almost all day.

It is quite possible that, owing to their reluctance to take wing, Bitterns get cut up oftener than one suspects. A man cutting through the thick reed-beds with a long instrument (locally known as a "meag") might easily wound a sedentary bird whose primal instinct is to stand still and look as much like a dead reed as possible. This may account for skeletons which have been brought me from time to time. I know two instances at least, in 1922, where a Bittern was mown into and had to be killed.

Yet even Bitterns must have natural enemies, and fight and die like other birds. But they are strange elusive creatures, and much of their life-history is enveloped in mystery. What goes on in the reed jungle is hidden from sight. If Bitterns fight amongst themselves after the manner of Moor-hens, with interlocked feet, considerable injury may ensue. Moor-hens think nothing of breaking and tearing each other's limbs. That there are tragic happenings in these secluded reed-beds was brought home to me on April 10, 1923, when I was shown a dead male Bittern. It had not been dead long, as the body was still limp and the plumage unsoiled. Many of the under feathers of the breast were still in sheath, as if the bird had not completed its moult. Both the eyes had been put out some time previously, as the sunken sockets were covered with a hard film. There was absolutely no flesh on its bones. Evidently the poor thing had been blinded in some fierce fight, and ultimately starved to death.

William Turner's description of the Bittern is exceedingly quaint: "The Bittour is a bird like other Herons in its state of body generally, living by hunting fishes on the banks of swamps and rivers, very sluggish and most stupid, so that it can very easily be driven into nets by the use of a stalking horse. So far as I can remember, it is nearly of the colour of a Pheasant, and the beak is smeared with mud; it utters brayings like those of an ass. Of all birds it aims at men's eyes most readily."*

With all due respect to my great namesake, I think he maligns the Bittern. It may have been less wary in his day, but there is nothing in its boom that suggests the "brayings of an ass." Moreover, it can behave with unsurpassed dignity and condescension.

Superstitious fen-men made their wills if a "Bittourn" flew over their heads at night. This would lead one to suppose that even then the uncanny Bittern was not too plentiful, and that it was more frequently heard than seen. Goldsmith, in his *Animated Nature*, remarks: "I remember in the place where I was a boy, with what

* *Turner on Birds*, p. 41.

terror the bird's note affected the whole village; they considered it the presage of some sad event, and generally found, or made one to succeed it."

The more materialistic modern marshman is less affected by the Bittern's boom, though even he looks upon it as the reverse of a joyful noise. I asked one of the most cheerful boat-builders of my acquaintance not long since if he had heard the Bittern boom lately, and his reply was: "*Heard* it, why its bin shoutin' all the mornin' enough to give one the bloomin' hump!"

This sound has frequently been likened to the bellowing of a bull, but it is not nearly so raucous. One might mistake the bellowing for a boom, but when once heard, no ornithologist would mistake the booming of a Bittern for the bellowing of a bull. A woman of my acquaintance (not a Hickling resident), for two evenings in succession refused to pass a certain corner of the Broad, because she said there was a "gurt big bull a-bellowing on the maash," and this in 1922! The word "boom" does not represent the sound half so well as the Welsh "*Bwmp*" (*Bwmp y gors*, Boom of the marsh), which expresses the cry as adequately as mere human syllables can.

From my earliest acquaintance with the Broadland I had always longed to hear the mysterious booming of the Bittern, not merely reverberating from its cavern in the Zoological Gardens, but—

"Booming from the sedgy shallow,"

and echoing across the silent fens. The older marshmen always spoke of this sound with a kind of awe, and the loneliness of the marshes seemed to me incomplete without it. In 1911 the male had ceased booming before we found the nest. In 1912 I was unable to visit Hickling until the autumn; and in the spring of 1913 I was in North Uist, so that my desire was not fulfilled till April 13, 1913, when I spent three days near the original nesting site of the 1911 Bittern.

The curious and solemn booming of the Bittern has always been associated with waste places, and utter solitude. In John Wycliffe's translation of the Bible, the Bittern is introduced as an emblem of desolation when describing the future ruins of Babylon: "*And bitouris schulen answeare there*" (Isa. xiii. 22). In the 1611 Bible, a similar passage (Isa. xxiv. 11) is translated: "*The Cormorant and the Bittern shall possesse it.*" Mediæval poets and prose writers always referred to the Bittern—under one or other of the thirty-eight forms of the name—as the one bird most typical of the "fenny" lands. Bitterns breeding in the Isle of Ely were the objects of special protection during the fourteenth century, when it was made a criminal offence to carry their eggs out of the district. In those days the Bittern was greatly esteemed as a table-bird. Why, I cannot think; as there seems so little flesh on its bones.

The male Bittern begins to boom early in February, and it may be heard during the last week of January. At first the sound is not a resonant boom, but merely a kind of grunt. It takes about ten days for the Bittern to develop his full vocal powers, because the instrument is not in tune, and the vocalist is out of practice. Booming is a challenge and a mating cry. Mons. Burdet once told me that he observed a male Bittern booming at 6 a.m. in the Zoological Gardens at Rotterdam, in front of the female. Mons. Burdet described the bird as taking deep breaths with head bent low and the beak pointing upwards. James Vincent, who was lucky enough to see a Bittern boom from its lair in a reed-bed, describes its attitude thus: "During the intake the head is thrust forwards horizontally, and the whole body vibrates as it gasps; then,

in order to boom, the head and neck are raised, but not quite perpendicularly." It booms at any time during the day and night, but most regularly after sunset, and before dawn. But individuals vary very much in their times for booming. They follow no set rule.

When in full power the booming of the Bittern will carry three or four miles. I have myself heard it from a distance of three miles as the crow flies. Yet, when heard at close quarters, the volume of sound produced is neither loud nor strident, but it is intensely resonant. At a distance the booming only is heard; one has to be fairly close to the bird in order to hear the intake which precedes the boom, but in very still weather even this can be heard six or seven hundred yards away. The intake consists of tense short grunts as if the Bittern were stabbed with sharp pleurisy pain and could only gasp. Then comes a long-drawn inspiration immediately followed by a deep boom. These sounds—the long-drawn inspiration and the boom—are repeated three times as a rule, but often five or six times. Different birds vary much in their vocal powers, and amongst the eleven Bitterns which I heard booming during 1921-22, no two birds boomed in the same key and seldom at the same time, so that if two are calling together, it is quite easy for the trained ear to distinguish between them. One Bittern repeatedly boomed twelve times; there was no doubt about this, for I knew the bird's lair. Had two Bitterns overlapped, the distance between them and atmospheric conditions would have resulted in a varying key. Some birds—perhaps young males—can hardly boom at all. One in particular in 1922 could not produce more than one resonant boom, the rest were mere grunts. Curiously enough, in 1923, a Bittern booming in this same spot was often very uncertain in his first boom, while the second and third were normal.

During the period prior to incubation, the female sometimes utters a soft booming sound in response to the male's call. This sound is a subdued "wumph," more like the first seasonal efforts of the male before his voice is in training. When the female responds in this manner, the male gets excited and booms louder than ever.

As a rule booming ceases altogether in mid-June—that is to say, as soon as the young are fledged. But in 1922 one male was booming strongly up to July 9. In all probability, his mate was nesting late, as I frequently saw a female Bittern on the wing near the spot occupied by this male. But in 1923 Bitterns boomed until July 18, perhaps making up for their comparative silence during the preceding bitter weather. After thunder-storms all the Bitterns in the neighbourhood seem to vie with each other to make as much noise as possible. In 1915 one of them uttered loud and long protests at the bombs which were dropped in its vicinity. About June 17 the Bittern's voice begins to break; this may occur only two or three times a day at first, and the bird may boom lustily between times for another week, but it is the beginning of the end, and gradually the Bittern lapses into silence. The break in its voice is akin to that of the Cuckoo; there is as much difference between the true resonant boom and the broken sound as there is between the ring of a sound and of a cracked glass. I well remember the night of the last air raid on London, May 30, 1918. The May full moon is always a kind of gala night of Grand Opera in the Broadland. If fine it is a night of superb glory, the great Broad reflects the light as in a huge mirror; it is not to be wondered at that birds are awake and excited. I was alone that May 30, and wandered about the marsh listening. Red-shanks were yodelling, Snipe bleating, Lapwings calling, Reed and Sedge-Warblers singing as if their hearts would burst with the effort; all this went on till 5.30 a.m.



THE BABY BITTERN OF 1922.



THE FAMILY ALL BUT COMPLETE: THE ELDEST HAS LEARN'T TO USE HIS "HANDS."

The grand chorus consisted chiefly of Reed and Sedge-Warblers, but running through it was a thin intermittent thread of sound rising and falling at intervals—it was the long drawn “reel” of the Grasshopper-Warbler. All this I had heard on many previous occasions; it is an age-long chorus coming down from the time when “All the morning stars sang together, and all the Sons of God shouted for joy.” But that night there was for me a new thrill in it all. Beneath this riot of song and accompanying it like a deep bassoon was the booming of six Bitterns challenging each other across the wide marshes. Alone in that great expanse, it seemed as if the whole orchestra had turned up for my benefit—even the dronings of the aircraft were hardly distinguishable above the great chorus. I wish that every real bird lover could have shared that thrill with me.

During July one sees very little of the Bitterns until the end of the month, they are seldom about in daylight, and are scarcely heard at dusk. But during September and October they fly up from their respective hiding-places, and call to each other in the gloaming. Like the booming of the male, the hoarse guttural cry of both sexes is in varying keys, so that you can tell how many are floating overhead. At that time of the year the marshes are almost silent, and the gradual trailing off into space of these hoarse cries is quite enough to make the superstitious fen-man of old time think that the air is full of banshees and lost spirits. I have some amount of sympathy with him myself, as I suffer intensely at times, from an elemental terror of the dark. The closer one lives to the heart of Nature, the more primitive are one's emotions. Nature can instil into the minds of her devotees something of her own great calm; and she can also inspire them with an utter and unreasoning fear of her power.

During the mild winter of 1922-23 I saw Bitterns nearly every day, flying to and from their feeding grounds. For a fortnight in January one frequently crossed a dyke close to my boat; I knew it was the same bird, because one leg was broken and hung down limply. Once, when I was coming quickly round a narrow private path skirting the Broad, the dog Bogey running ahead, he suddenly stopped and growled. I looked round, and close to the path, so that my skirts must have brushed against it, this wounded Bittern was crouching in a mixture of blackberry and sedge. It was clinging to the tangle with one foot, while the broken leg lay useless beneath it. Its attitude and colour so camouflaged the bird that I should have passed it unheeded but for the dog. I stood and examined it for some time, during which it did not stir a hair's breadth. The leg was broken above the “knee.”

In frosty weather Bitterns are hard pressed for food, and then venture more out into the open. In December, 1922, I was staying in a secluded bungalow near the water's edge. One morning it was so cold I had to light all the stoves at 3 a.m.; there was almost half an inch of ice on most of the Broad. All that day a Bittern at intervals walked to and fro before my window, working round the sides of a dyke where the sun shone, and consequently where the ice was thinnest. It looked very dejected, hunching up its shoulders and the neck feathers, and fluffing out the loose plastron of feathers on the breast. It picked up its feet in a dainty and delicate manner, as if contact with the ice was not congenial.

During the hard winter of 1916-17, a marshman, named Gray, always kept the ice broken in a dyke which he had to cross daily. For three weeks, whenever he came near the dyke, he found two, and often three, Bitterns feeding, and was able to get within a few yards of them and watch them fishing. He did this for love of the Bitterns, and deserves the thanks of all bird-lovers for the protection afforded to the

birds, just at the critical point in their history; for at that time they had not increased and spread over a very wide area.

All the foregoing details of the home life of the Bittern must be interpreted in their widest sense. The species is new to the present-day observer in this country. Though I have watched it during eleven years as closely as such an elusive bird will permit itself to be watched, I have already had to modify several earlier statements. I would, therefore, again emphasize the fact, that individuals of any species vary constantly in their behaviour. The first few pairs of Bitterns were rarely seen at close quarters; as they increase in numbers, they may become less wary, and it will then be possible for future observers to obtain much fuller details of their daily lives.

II

THE BEARDED TIT

PANURUS BIARMICUS (Linn.).

LOCAL NAMES: REED PHEASANT, BEARDED REEDLING.

A BEARDED Tit on an April day and beneath an April sky—this is the crowning glory of the marshland. When Nature made the reed-beds, she evolved the Bearded Tit on purpose to play in them.

To see this species in perfection, you must lie up in a punt amongst the reeds on a windless day, late in April. The reed-beds are more beautiful then in their decay than ever they were in their midsummer pride, for the subtle alchemy of the spring sunshine turns their greyness into gleaming gold—tawny gold, the one perfect setting for the tawny little gymnast who presently will slide up the reeds and peep through at you. A quiet day is absolutely necessary, for the Reed Pheasant is none too robust, and hates being buffeted by the wild wind. His approach is heralded by a sharp metallic note akin to the ping of a bullet or the twanging of a violin string. This is practically his only song, but the note is capable of a modulation, and when rapidly repeated by both sexes, or by several birds together, it has a peculiar resonance which carries a long distance. Soon the bird itself will appear. If the male, he is at once distinguished from the female by his grey head and long black moustaches. Both are clad in russet plumage, which tones with the dead reed-stems. Tawny and grey, the Bearded Tits take on colour from their surroundings according as the reed-beds are illuminated by bright sunlight, or fade into greyish-brown under a clouded sky.

It is good to be alive and watch the Reed Pheasants as they play up and down the tall reeds, using their long tails for the same purpose that a human acrobat uses his balancing pole. Perhaps the male may catch sight of you; if so, he merely pauses for a few seconds and fixes you with his keen eye—which is pale blue rimmed with yellow—then he will puff out his beard, and fan his beautiful tail by way of expressing surprise or scorn, and that is all. It is the cut direct, he quietly pursues his own business and ignores your existence.

Though the Bearded Tit is not wholly confined to the Norfolk Broads as a breeding species, its actual nesting area even in the Broadland is limited, for it is abundant in some localities and scarce or altogether wanting in others, which to all intents and purposes seem equally suitable. It is a sociable species, for several nests may be found within a short distance of each other. It cannot be said to nest in colonies, yet a number of pairs will form a little community in one corner of a marsh year after year, although the rest of that swamp would afford just as good nesting sites, and an equally abundant food supply. Indeed, isolated nests will be found dotted over the whole area, but the Reedling is a law unto itself. If of socialistic tendencies, it indulges them; if fond of solitude—the marshland is wide and free.

At one time the Bearded Tit was in great danger of becoming extinct in the British Isles. But since it has become the object of both public and private protection,

this unique denizen of the Broads has increased considerably up to a certain point. No effort must be relaxed, if it is to hold its own. Public opinion, with regard to birds, can never again sink to its former low level, thanks, not so much to special Protection Acts, as to the increased interest in wild bird life altogether, of which these Acts are the outcome. Also, a great deal of credit is due to the little band of bird-photographers, whose work has done so much to arouse interest and enthusiasm.

Writing in 1899, Mr. J. H. Gurney estimated that there were only thirty-three nests scattered over twenty-two Broads; this was probably a conservative estimate. In 1909 I knew of seventeen nests in about a fifth of the area of one large swamp alone. But the actual number of breeding birds varies considerably from year to year. After a mild winter, followed by a correspondingly mild spring, Bearded Tits' nests will be plentiful. But after a hard winter or a cold spring, their numbers will be considerably reduced. Even a few days of really severe weather late in the season will produce dire results.

During the last few years there has again been a diminution in numbers. The severe winter of 1916-17 decimated the ranks. In 1919 there was a scarcity of Bearded Tits throughout their breeding area. In 1920 I saw only two broods of fledged young roosting in a reed-bed which had formerly sheltered three times that number. In 1922 I only saw three nests scattered over a wide area. But during the winter of 1922-23 the winter flocks had considerably increased in numbers. Consequently, during the breeding season of 1923, some localities were again well stocked. In spite of the fact that the Reed Pheasant does withstand the rigours of a Broadland winter, it is not a particularly hardy species. Its food consists largely of insects and their larvæ, details of which will be given later on. When the Broads are frost-bound and swept by bitter blasts, the Bearded Tit finds it hard to support life. Then, the tinkling of innumerable fairy ice-bells fringing the dead reed flowers must ring the death-knell of many a little life.

The Reed Pheasant is gregarious during the winter, but from the middle of February onwards the flocks disintegrate, and the males fight furiously. They chase each other over the reeds, and then dropping into cover, continue the brawl in private.

When courting the hen, the cock erects his grey head feathers and puffs out the two long ends of his beard in a way that is obviously irresistible. The long tail is held erect and fanned, so that the jet black under-coverts are brought into prominence. The female sometimes takes no notice of this display, but merely clings to a reed and looks the other way. Occasionally, however, she executes a curious dance along a comparatively horizontal reed; this dance resembles a minuet in its slow stateliness. At intervals both birds fluff out their contour feathers and fan their tiny wings. Before settling down to family cares a kind of nuptial flight is taken. This is beautiful to watch, and surprising when, as a rule, one only sees these birds flitting somewhat clumsily from cover to cover. Both leave the sheltering reed-beds and, with clear call-note, rise gradually into the air. There is no undue haste when once the couple begin to soar; with outstretched wings and quivering tail, they seem to float upwards. Sometimes the male will be uppermost and sometimes the female, and in this manner they rise alternately until both are mere specks in the blue. You have to watch and watch for the specks to reappear, for the descent is made suddenly and they drop like stones into the reeds, there to take up the burden of life after this excursion into mid-air. And life is a very serious business to the Reedlings, for they may produce and rear fifteen or eighteen young ones in a season.

The nest, which is built by both birds, is composed of dry blades of the reeds (*Arundo phragmites*) and lined with the same plant's brown, feathery panicles. This lining is added by the male *after* the first eggs are laid; in fact, he often does quite two-thirds of the nest-building. The male Bearded Tit is a curious mixture of virility and feminine attention to detail. Amongst most birds (especially the Warblers) the rough work is done by the males, while minute details of furnishing are left to the female. It is evident from several cases which have been brought to my notice that the cock Reedling sometimes makes a muddle of things, and in adding the lining not at all infrequently covers up one or two eggs altogether, and these may be found embedded in the nest after the young are fledged.

All the nests I have ever seen have been placed in a mixture of sedge and reed, and never amongst reeds alone. In August, 1914, I thought I was going to find an exception to this rule. I noticed that a family of fully fledged Bearded Tits frequented a small and isolated patch of reeds; they left it at dawn and returned regularly to roost there at night. On pushing into this little reed-bed I found a small sedge bush hidden within the reeds, and in the centre of this the nest from which young had recently flown.

Occasionally nests will be found amongst low-growing sedges and rushes on a comparatively dry marsh, but the Bearded Tit prefers dense masses of sedge and reed, through which one has to wade ankle-deep or knee-deep in water. It is easy enough to mark down a pair of Reed Pheasants and locate the site of their nursery, but its actual discovery is quite another matter. It is placed low down, sometimes only a few inches above the water-line and amidst the thickest cover, so that it is admirably sheltered from inclement weather and screened from birds of prey. Predatory humans also have to beware, or they get their hands badly cut by the saw-edged sedges.

The first Reed Pheasant's nest I ever saw was in April, 1901. It was also my very first experience of a reed-bed, and being told to "look," I hastily stepped out of the boat and found myself up to my arm-pits in water. I grasped at the sedges to save myself and the results were disastrous to my hands. However, it was worth it, and I gained wisdom from experience.

The Bearded Tit is an early breeder; two broods and sometimes three will be reared in a season. The earliest nest I have ever seen was one containing one egg on March 31, 1923. By the end of April nesting operations are in full swing. On April 29, 1909, I saw four nests not far from one another, one was just ready for eggs, another had two eggs, while the other two each contained two newly hatched young. This discrepancy is typical of the Reed Pheasants' nesting habits. The latest nest I ever saw was on September 22, 1907; this held a little brood of five just ready to fly. It was said to be the third family which had been reared in that one nest.

The hen lays from five to seven eggs, but six is the usual number. On April 14, 1913, I saw a nest containing ten eggs. These were obviously laid by two different birds, as they were of two distinct types, five being oval, and five almost round in shape. This nest was discovered by some men who were mowing a rand alongside my island. They left a little cover round the nest, but the birds immediately forsook it. As it happened, on the 1st and 2nd of April, I was keenly interested in the behaviour of *three* Bearded Tits which were backwards and forwards all day between this rand and my bay. The particular point of interest was this—two females were chasing one male! On the second day they all three soared upwards in the manner

already described as part of the courting display. Less than a fortnight afterwards, I was shown this nest, and photographed it; the two types of eggs show distinctly. The evidence, though merely circumstantial, is somewhat damning. Nowadays no bird's private life is safe from the prying bird-watcher with his field-glasses and camera!

Bearded Tits always seem to me to show a more marked individuality than do most species. This is probably due to the fact that I have devoted more time to these birds than to any others, for, of course, individual birds of all species vary very much in their behaviour.

The Bearded Tits are, however, more confiding than most species, and always seem absolutely absorbed in the domestic details of their own lives to the exclusion of all outside interests. In addition to their natural beauty and grace, they are full of surprises and devoid of fear; though the latter trait is perhaps more characteristic of the female than of the male, who is apt to be shy of a camera—unless robbed of his mate. Then "his courage mounteth with occasion."

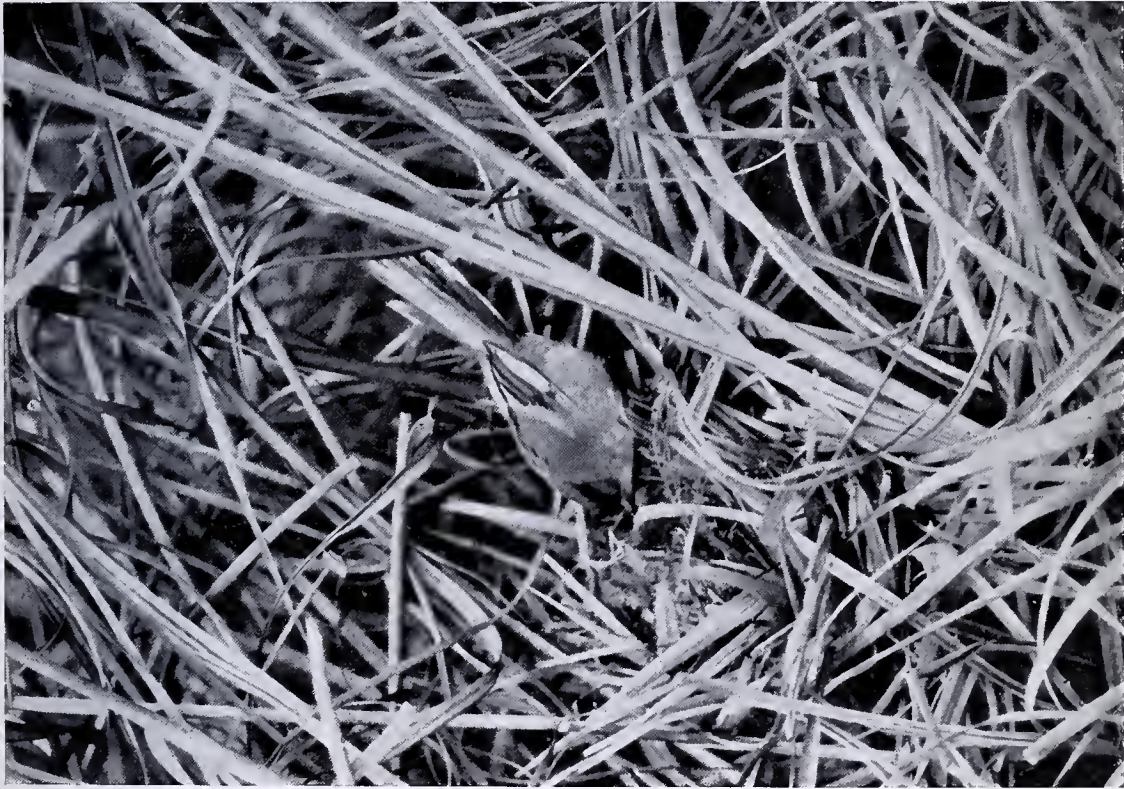
Both sexes incubate, and I should say that they take equal shares in this work—at any rate, during the day. When the young are hatched, the hen broods over them for the first two or three days and expects her mate to forage for food. Later on both are kept fully employed, for a growing family of six takes a lot of feeding. In June, 1912, I put up my tent beside a nest about a week before attempting to photograph its occupants. So long as the tent alone was there, neither of the adult birds showed any fear, but when once the lens appeared the male bird's courage vanished. He was the first to return as soon as I had settled in, bringing in his beak a very large green caterpillar which he himself eventually swallowed in sheer fear, and would not repeat his visits, though diligent in collecting flies for his mate, who showed no alarm. This cowardice on the part of the cock was obviously a source of annoyance to the hen, for when weary with the extra exertion entailed upon her by his defections, she would brood over the young, during which time she evidently expected the cock to bring supplies. However, he did nothing but run to and fro behind the nest; this caused her to ruffle up her feathers and make sundry short, sharp remarks in answer to his grumbling; finally, she darted at him and drove him away. Having thus relieved her feelings, she set to work with redoubled energy. This little by-play occurred about every hour.

I have never seen any other species pay such attention to the toilet of her young as is the case with the hen Bearded Tit. Not satisfied with the ordinary sanitation of the nest she will, when brooding, restlessly peck at the lining, apparently removing and swallowing those minute insects which usually infest nests. She will often stand up and carefully comb the tiny sprouting head-feathers of each youngster in turn, by gently drawing the little bristles through her bill. Doubtless this helps to remove the feather-scales—at any rate, the little ones seem highly to appreciate the process. I have never seen other parent-birds fuss over their young in this manner; as a rule they have no time for such delicate attentions. But the hen Bearded Tit is even more full of compressed energy than the common Wren, and can hardly be said to rest even when brooding. The cock, however, does not permit his masculine mind to be perturbed by trifles; he broods more contentedly.

Sometimes nothing will induce the male to face a camera. The first pair I ever photographed caused me great amusement. Both were timorous and for some time watched my shelter from a distance, clinging to the reed-stalks, and talking to one another. Finally, the male caught a fly, gave it to the female, and literally drove her



THE BEARDED MALE WHO HAS JUST FED
HIS YOUNG.



THE FEMALE TIT SPREADING OUT HER
WONDERFUL TAIL.



THE FAMILY JOINT : EACH SPOTTED PALATE AWAITS ITS "TIT-BIT."

to the nest, using wings and beak to emphasize his orders. Eventually the hen came slipping mouse-like through the sedges, shyly at first, but after awhile she gained confidence, and fed the brood diligently. But during that day and the next, the male only came once while I was there, though I often heard him climbing up the side of my shelter to inspect its occupant, and sometimes caught him peeping through a thin place in its reed-thatched exterior.

On another occasion, however, a male Bearded Tit was absolutely devoid of fear. From the moment I arrived with hurdles and camera he took no more notice of me than if I had been non-existent. Apparently he had lost his mate (she had been helping him the day before), so the whole business of tending the five hungry little ones devolved upon him, and perhaps a feeling of double responsibility rendered him indifferent to danger. Every few minutes this much-harassed bird returned with food, nor did he take any rest during the five hours I spent at the nest. Twice I had to come out of my tent to change the lenses I was using, and in doing this stood almost over the nest, but he did not cease his visits. Added to these cares, as if he had not enough worry in his strenuous little life, he was pursued by six fully-fledged youngsters, evidently his first family.*

The young, when first hatched, are ugly slate-coloured little birds without a scrap of nestling down, and showing no trace of the beauty that is theirs by inheritance. The most interesting point about them is not displayed until they open their beaks, when the peculiar palate-markings are brought into view. Attention was first called to these by the Rev. M. C. H. Bird, but so far science has not found any explanation of their presence. They have been accurately described by Mr. Pycraft as follows: "These markings take the form of four rows of pearly-white, conical peg-like projections, suggesting the palatal teeth of reptiles, ten on either side of the middle line. These tooth-like bodies are not of uniform size, and are set in a background of black surrounded by rich carnelian red; the whole being framed in by the lemon-yellow gape wattles, which are not very strongly developed. The tongue is black with a white tip, and with a pair of white spurs at its base."†

The younger the nestlings the more conspicuous do these projections appear, so that when the nestlings are very young, the palate looks like a minute harrow. The four outer ones on either side are in a straight row, while the other twelve are dotted about irregularly between. They are still present when the young leave the nest, but disappear ultimately. I have not been able to discover how long they persist, nor whether they drop off or become absorbed.

I promised Mr. Pycraft to obtain a photograph of these palate markings, if possible, and after a lot of labour succeeded in doing so. I found that by gently rubbing a reed against the sedges near the nest, and so producing a sound akin to that made by the old birds as they slip down the reeds, I could deceive the nestlings and make them open their mouths; and the mouths remained open a considerable time, there being no food to shut them!

The food supplied to the young consists entirely of insects, chiefly flies and the smaller species of *Neuroptera* and *Trichoptera*. The parents generally arrive with bunches of these tiny dusky insects, and the insects are then served out all round—at least, as far as they will go. As the nestlings grow they are fed on delicate ethereal-

* E. L. Turner and P. H. Bahr, *Home Life of Marsh Birds*, p. 39. Witherby and Co.

† *British Birds*, vol. ii., No. 2, p. 58, and *British Bird Book*, vol. ii., p. 228. Messrs. T. C. and E. C. Jack.

looking insects, such as the May-fly and scorpion-fly; caterpillars also form a part of their diet. The male usually brings the largest and juiciest caterpillar he can find. It is thrust into the gape of one youngster—all protest being effectually stopped as his mouth is more than full—but instead of being allowed to swallow it all, he feels it being rapidly divided up and served round, and has to content himself with his portion. There is abundance of food in the reed-beds, yet the parents often go a considerable distance in search of it.

When feeding or talking to the young, the old Bearded Tits utter a curious guttural note “p-whut,” which can easily be reproduced by drawing a finger lightly over all four strings of a violin, and putting a little extra pressure on the “g” string at the start. The note of the young is simply “whut, whut.” When they first leave the nest, the young are taken to some little oasis of mud or ooze on the edge of the reed-beds, where they sit contentedly awaiting their turn to be fed. They are seldom close together, but dotted here and there; and, but for the little call note, would escape observation, as they are part of the colour scheme and exactly match the brown sheaths of the young reeds against which they crouch. At the faintest suspicion of danger they take refuge in the reeds, but they are not easily alarmed provided you approach them cautiously and remain quiet.

There is nothing in the way of bird-watching that I love more than edging my canoe along by holding on to the stubbly rushes fringing the little lagoons which lie hidden amongst the denser reed-beds. It is to these places that Bearded Tits resort with their newly fledged broods. By crouching down in the canoe one is brought almost on to the same level as the birds, and sees to perfection the wondrous arrangement of colour which is such a distinctive feature of the Broads in early spring. Brown mud and blue grey water merging into the green of the young reeds—a level band of green, six or eight inches high, surmounted by a vast sweep of golden reed-beds apparently reaching up to the blue sky.

I well remember coming one brilliant Sunday morning in May upon three broods of Bearded Tits—fifteen young in all—which were dotted about upon the ooze in one of these secluded spots. Each bird waited in silent expectancy, for they are not boisterous like the young of some species, but patiently await their turn to be served. The air was full of the hum of insect-life. Snipe drummed dreamily, Redshank and Lapwings were calling overhead, and all the smaller songsters filled the waste spaces with their “sweet jargoning.” Two of the male Reedlings hawked for flies on the wing, turning and twisting in the sunlight as they chased delicate winged insects. One very beautiful male bird swung on a tall reed eyeing me suspiciously and resentfully, but the three females ran hither and thither regardless of everything but the needs of their respective broods.

Suddenly the hitherto brilliant sun became overclouded, the wind rose, and away over the Broad came the sound of lashing hail upon the open water. In two minutes I was back in my houseboat behind closed doors, while twenty minutes later my man was shovelling away ice from the stern-sheets before the doors could be again opened. I cannot tell what became of the Tits. It seems to me that such sudden changes of temperature, together with the tremendous downpour of rain and stinging hail, must surely destroy numbers of half-grown birds. At any rate, I did not see so many Bearded Tits again in that locality. Sudden storms shatter birds’ nerves, and inexperienced young cannot be immediately rounded into a place of safety by half-distracted and anxious parents.

When stronger on the wing the young Reed Pheasants are taken to the denser reed-beds, and they practically keep to these from that time onwards. The first family soon has to take care of itself, though generally it keeps with the cock bird until the next brood engrosses his attention. When discarded, these youngsters roam about in little parties with their contemporaries.

After the breeding season, old and young collect together and wander from Broad to Broad. As winter approaches, they may be seen in flocks of from twenty to forty, but—with the exception of a few enterprising stragglers who generally come to a bad end—they do not roam far from their breeding-areas.

On rough days Bearded Tits are seldom seen. Even in still weather they never take long flights, but merely flit from one reed-bed to another. Their flight is laboured, undulating, and slow. The tail plays a very prominent part in the mechanism of the Bearded Tit's flight, for whether moving quickly or slowly, there is always a rhythmic double-movement going on. The tail is spread fan-wise, and almost at the same moment is given a swift, spiral twist; this double-movement is extremely rapid, but very apparent, especially in windy weather. The twist is due to voluntary muscular action, and must somehow assist in steadying these birds, which dislike a rough breeze and often require all their strength and skill to battle against the wind. The movement may be akin to the swift spiral twist a squirrel gives its hind legs when taking an extra long jump. This "rifling" certainly imparts steadiness to the squirrel and enables it to alight with unerring accuracy on any given spot.

In the winter the Bearded Tit's principal food consists of the larvæ of *Laverna phragmitella*, which begins to burrow into the reed-mace during August and remains there all the winter, causing the "pokers" to burst out and become fluffy. They also feed upon another grub which bores into the reed stems. It is largely owing to the presence of these two insects that the frail Reedling is able to endure the rigours of a Broadland winter; they need not leave the sheltering reed-beds in search of food. From recent observations made upon the feeding habits of this species, I doubt if it ever devours seeds at all. The fact that there must be plenty of insects amongst the reed-beds in the winter is proved by the presence of innumerable Common Wrens which frequent them throughout the cold months. So tame are they in the winter, that I have sat by a heap of reeds while the men were reed-cutting and watched them picking up insects at my feet. They will follow the reed-cutters all day, feeding in the exposed ooze when the reeds are removed.

I once rescued two pairs of Bearded Tits from a London shop and transferred them to an outside aviary until I could release them in Norfolk; providing them meanwhile with suitable cover. During the three months I kept these birds in captivity, they seemed to me quite the most affectionate species imaginable. They roosted side by side, and the cock always spread one wing over the hen, so that when their heads were tucked away, and the contour feathers fluffed out, they looked like one little feathery ball. When feeding, they frequently scratched on the aviary floor after the manner of Barn-door fowls, perhaps because in nature they so often hunt for food amongst the ooze. They bathed every day, and always together. Their method of drying themselves was amusing. They would sit huddled up together till dry on the sides touching each other; then reversing their respective positions, they proceeded to dry the other side, mutual warmth evidently assisting the process.

Unfortunately I lost both the hens. I then put the two cocks together, and they

lived in the same loving fashion, roosting and bathing in exactly the same way as the pair had done. One was a very handsome bird, but the other, in addition to a generally dishevelled appearance, was minus a tail. They continued to live in perfect harmony until one evening, when I introduced another hen. Then came discord. In less than five minutes the hen showed a decided preference for the more handsome male, and he began to chase and bully his rival with such vigour that I had to interfere and rescue the weaker bird. The accepted lover then went through his beautiful display. Meanwhile the female sat preening herself with a very self-conscious air, and continued to do so till satisfied that her personal appearance was beyond reproach. Having completed her toilet, she spread out her tail and danced a "pas seul" which seemed to inflame her admirer to yet greater ardour. Finally, after much posing on the part of both birds, they nestled close together and settled down quietly.

I could never induce these captive birds to eat seed of any kind, but in addition to insect-foods I supplied them daily with loose tufts of matted vegetation, consisting chiefly of canary seed which sprouts rapidly, but has no depth of root. So fond were the Tits of this material, that they would perch on my hands and attack the tufts before I could strew them on the ground, instantly tearing away the loose mould with beaks and claws and picking out the minute white larvæ with which it was infested.

During a spell of frost I lost sight of the Tits for some hours, and fearing a rat had destroyed them, or that they had succumbed to the cold, I began to search for them. They were safe and warm, nestling close together at the end of a foot-long tunnel they had managed to make for themselves in the dead and recumbent grass bents. They always took refuge in this during bad weather. I have already referred to the Bearded Tit's foot as similar in usefulness to a Barn-door fowl's, and I conclude that the Tits had scratched out this shelter for themselves, as it certainly was not my work.

The Bearded Tit is at all times a remarkable gymnast, and performs all kinds of feats amongst the reeds, sliding up and down or twisting round and round a stalk with indescribable dexterity. It seldom comes head-first down a reed, neither does it climb hand over hand. Both the ascent and the descent are made in a series of rapid jerks. Whenever a branching leaf obstructs its way the bird avoids it by slipping round the stalk.

Few birds can twist their lithe bodies into such curious attitudes as the Bearded Tit is capable of doing. It will grasp with either foot reeds which are several inches apart and from that position bend down to the nest and feed the young. The female turns and twists in a striking manner when she dives into the recesses of the nest, or strives to reach the outermost of her brood.

Perhaps, after all, the male Bearded Tit shows to best advantage in the winter. It is then that one so often sees him balanced on a swaying reed-mace remorselessly scattering its fluffy contents as he searches for food. The soft buff and brown of the bird's plumage exactly tones with the torn and ragged "pokers," and his beautiful grey head blends with the wintry sky. Let us leave him swinging there, a perfect master in poise: "The *Broads* faire ornament and Heaven's glorie—Joy may you have."

III THE RUFF

PHILOMACHUS PUGNAX (Linn.).

THE decline of the Ruff as a native breeding species is generally attributed to drainage, and the reclamation of the fens. This tradition, like many another polite fiction, was originally invented to cover up the real facts which in themselves are more than sufficient to account for the reduction to vanishing-point of both the Ruff and the Bittern. There is no doubt that both these species owe their destruction to the wholesale and indiscriminate slaughter which was systematically carried out during the breeding season.

There are still acres and acres of suitable breeding and feeding grounds available for the Ruff. Its food does not materially differ from that of the other Sandpipers, for it consists chiefly of worms, aquatic insects and their larvæ. The Dutch system of drainage is far more perfect than ours, and yet there are numbers of Ruffs and Reeves left in Holland. Moreover, in that country they are not particularly shy birds, and are often so preoccupied with their own affairs that when displaying, fighting, or otherwise amusing themselves at the social gatherings indulged in and beloved by the Ruffs, they will allow themselves to be run over by a motor-car. In the Yenesei Valley, also, they are so intent upon their sham fights, that "now and then a passing man could step almost in between the combatants."*

Birds learn to adapt themselves to changes of conditions which are *slowly* brought about, but no species can possibly survive systematic persecution. When one takes into consideration that at the *outside* not more than ten per cent. of young birds hatched in a season ever attain maturity; and also that, in order to maintain the average, it is only necessary for one pair of birds to produce one surviving pair during a lifetime, it is obvious that to kill both sexes during the period of incubation must annihilate any species in a very short time. This is simply what happened in England with regard to the Ruff. Montagu's account of the methods formerly employed in order to capture Ruffs and Reeves for the market should convince any reasonable person that these alone are responsible for the disappearance of the Ruff as a breeding species. In his *Supplement to the Ornithological Dictionary*,† Montagu tells us how the birds were captured in Lincolnshire. "When the Reeves begin to lay, both these and the Ruffs are least shy, and so easily caught that a fowler assured us he could with certainty take every bird in the fen in the season." The Ruffs were netted wholesale by means of large clap nets as soon as they assembled in the spring on their "hills," and in this manner every Ruff in a given area could be accounted for. Thus, by taking the old birds in the spring (as well as the eggs), and any young which happened to survive till the autumn, the whole of the breeding stock was eventually destroyed.

In Norfolk nets were never used, but the birds were caught by means of horse-hair

* M. D. Haviland, *A Summer on the Yenesei*, London, 1915, p. 57.

† Published in 1866, pp. 275-276.

snare, and of course they were frequently shot and robbed of their eggs. As the Ruff became more and more rare, its beauty and increased value led to its further diminution, until one or two pairs only returned to breed.

The Reeve was known to nest in the Broadland in 1884, 1886 (three nests), 1887, 1889, 1890, and not again until 1907, when it is possible that there were two nests. Since the last date there is only one well-authenticated instance of their having bred, although it is probable that they may have done so on one or two occasions. Unfortunately the few pairs of Reeves which endeavoured to re-establish themselves in the fen country have from their rarity kindled the insatiable desire of every unscrupulous collector to possess British breeding birds and their eggs. The inherent homing instinct, which is perhaps more strongly hereditary in birds than in any other animal, makes it almost impossible to repatriate any species which has ceased to breed in a given area. But as the apparently impossible has happened in the case of the Bittern, there is still hope for the Ruff.

Ruffs and Reeves visit the Broads in varying numbers every spring and autumn. Strong easterly winds in April will generally bring in a few birds; they usually arrive singly or in small parties, and sometimes in great numbers.

The year 1903 saw an unusually large migration at Hickling, while the spring of 1909 also brought a large influx of Ruffs and Reeves. On March 20 two Reeves were recorded; throughout April, May, and June both sexes continued to arrive, but May 6 stands out in my memory as a never-to-be-forgotten day. There had been a strong easterly wind blowing for three days, and from about 5.30 a.m. numbers of Ruffs, Knot, and Godwit arrived, also Spotted Redshank and Grey Plover. The birds did not come all at once, but in a more or less steady stream throughout the day. I counted seventy Ruffs and Reeves in one party alone, and towards evening there were over two hundred collected together on what, in bygone years, was one of their favourite "hills." These birds could be counted through binoculars, but many more were running about amongst the coarse grass which partly concealed their movements; they seemed to be feeding, although the Ruff is said only to feed at night. There was no "display" and the whole assembly was a peaceful and probably tired, migrating flock. The Ruffs were in splendid plumage with "all their show on." The next day, May 7, as I was standing on one of the banks at 6 a.m. lost in admiration of a wild rose bush which was covered with unusually early blossoms, I saw a party of seven Ruffs coming towards me and flying due east. I dropped down behind the rose bush and the birds passed within a few feet of me. They were in splendid plumage; two of them wore ruffs of the conspicuous white variety, and one was a glowing chestnut colour. The majority of the Ruffs seen the night before had left earlier in the morning, but a few lingered on the marsh for two or three days. On May 30 eleven more arrived, stayed for one night, and then passed eastwards. On June 10 I counted twenty-five fresh arrivals. During recent years there has been no such influx of Ruffs, their numbers have not exceeded the normal. In 1913 two Reeves arrived on March 31, and two more on April 8, while in 1914 one Reeve was seen on February 28.

Curiously enough, although I have seen numbers of migrating parties of Ruffs and Reeves, and spent a good deal of time watching them at play, I have never heard the Ruff utter a single note.

In the spring of 1923 a little bunch of from nine to eleven Ruffs came in and stayed a month. The first two Ruffs appeared on April 8, and stayed in one place, so that day after day I was able to watch them gradually assume the breeding dress. A week



RUFFS ON THE WING.



RUFFS ASLEEP.

later the rest of the party arrived, and with them were several Reeves. As soon as the latter came, the Ruffs began to play and spar, and we had great hopes that some of them would remain to breed. But as soon as the Harriers began to work over this hill of Ruffs, they disappeared. The appearance of any predatory bird seemed to alarm them. One day a Hooded Crow hove in sight, and immediately the whole bunch of Ruffs flew away. They split into two parties, and went in opposite directions, but as soon as the Crow flew out to sea all the Ruffs returned to their hill and began sparring. There was one particularly pugnacious chestnut-brown Ruff which delighted in disturbing all and sundry birds in the neighbourhood. Even the heavy and solemn flirtations of the Shoveler Drakes were interrupted by this busybody. He was one of the two original arrivals, and seemed to consider himself cock of the walk. He frequently scurried round the hill, prodding up sleeping Ruffs and rousing their ire. Occasionally he met his match in the other first arrival, which had acquired a conspicuous white ruff. These two birds were more advanced in their breeding plumage than the other members of the party. On May 9 the whole company departed, much to our chagrin.

One of the 1907 Reeves was obliging enough to nest near my houseboat, and I fortunately secured some photographs of her. The nest was found on June 16, and at 2 p.m. I was standing beside the first Reeve which had been known to breed in Norfolk for eighteen years.

The nest in nowise differed from a Redshank's. It was placed in a tussock of rushes just above the water in a bit of very swampy ground; some of the rushes were intertwined at the tips. There was very little cover, yet the Reeve was well concealed, owing partly to the twisted rushes and also to her protective colouring. She let me creep close up, and I stood by her for twenty minutes. Meanwhile I sent for my hand-camera, as it seemed possible to photograph her then and there, owing to her comparatively exposed situation; but when other footsteps approached she suddenly took fright and flew away. We then made a rough shelter with two reed-thatched hurdles which met over my head, and I put up the camera. A heavy thunderstorm broke over the marshes, and rain fell in torrents for an hour. During this the Reeve was close at hand; I could hear her splashing through the water around me while she examined every feature of my shelter, and once she alighted on it. Having satisfied herself that no danger lurked there, she all at once made up her mind to return to her nest, and paddled daintily through the water, stopping every now and then to sip the raindrops as she advanced. I let her sit for some time, being fully absorbed in watching and gloating over the first Reeve I had ever seen at the nest. She looked very slim and elegant as she ran up to the nest, but when contentedly brooding she seemed to spread herself out tremendously. The noise of my shutter failed to disturb her calm, but my preparations had been hastily made and were inadequate; as a result I found myself slowly sinking into the swamp, and in endeavouring to shift my position startled the Reeve and she flew off. Unfortunately, the one plate exposed was useless, for although the rain had not touched my lens it was fogged by the surrounding dampness, and the result was a blurred image. Before leaving her I threw down the hurdles and covered them with a heap of litter.

On June 17 I tried again, but without success. I crept in beneath the litter and waited from 1.30 till 4 p.m., but the one plate exposed showed movement; however, the 18th of June resulted in several photographs. On the 19th I was out at 6 a.m. and waited by the Reeve till 8 a.m. Once, just as I dropped the shutter, a Snipe ran across

the foreground; a moment later, and both Snipe and Reeve stood side by side, gazing intently in my direction. Had I waited the fraction of a second longer, I might have secured a doubly interesting picture, whereas the Snipe now appears as a mere speckled heap in the foreground.

The Reeve seemed to have various friends and neighbours, who either thought she required cheering up, or else they regarded her in the light of a distinguished stranger, and paid court accordingly. At 9.30 on the same morning (June 19), she was accompanied to the nest by a Redshank. The latter sat on my rubbish heap whistling, yodelling and making little crooning noises—for whose benefit I do not know. They evidently pleased the Reeve, for she looked up to the Redshank from time to time, and moved her head from side to side as if cheered by his companionship; finally, she settled down contentedly, and seemed to take his attentions for granted. This little byplay was pretty to watch and, being loath to interrupt their intercourse, it was a long time before I dropped the shutter. When I did both birds fled, the Reeve uttering a curious guttural double note something like a quack as she flew off; this was the only time I heard her utter the slightest sound. This Reeve was a very shy sitter, and had I then possessed a silent shutter, many better results could have been obtained.

The whole of the time I spent near the nest, Snipe and Redshank constantly settled on me. On one occasion four Redshanks and a Snipe ran over me together, each bird uttering its own call-note. Whether I was beneath it or not, the heap of rubbish served as a dressing-place for all the neighbouring birds who happened to be at a loose end. I saw no Ruff at any time while the Reeve was sitting. On July 7 a Ruff and Reeve were seen near the nest, and later in the day there were two Reeves; but whether either of these birds nested on the marshes, or whether they were passing migrants, I cannot say. I last visited the sitting Reeve on June 24; she was still brooding, and continued to do so for another week. In order not to endanger the eggs I had them removed on June 16 to a Redshank's nest some little way off until I had finished photographing the Reeve, when they were replaced beneath her. In spite of my scrupulous care these eggs did not hatch, a disaster which oppressed me very much at the time, and I also suffered a good deal of opprobrium for "having caused the destruction of the last clutch of Reeves' eggs." I need not have worried, and the blame lies elsewhere, for the *real* eggs were all the time reposing in the cabinet of a well-known collector. But it took me three years to discover this fact!

It was not until 1920 that I had an opportunity of studying the Ruff at home. Then, owing to the kindness of Mons. A. Burdet, I was given every facility for watching and photographing them on one of their classic "hills" in Texel. Many photographs were taken between May 19 and 22, but my observations of the Ruffs extended over three weeks. Part of the time Vincent was with me, and so absorbed was he one day in watching a bunch of Ruffs playing in the road, that he cycled headlong into a dyke! This "hilling" ground was at the edge of a narrow meadow, separated from a crossroad by a dyke only. Sometimes the Ruffs played in this road, but there were always some to be seen on the meadow. By far the greater number of Ruffs assembled on the main road, where I saw from forty to sixty at a time. Some would be dancing; others sleeping, or fighting on their hills on the grassy margins of the road; but many were always rushing about on the road itself. If you were cycling they ran aside to let you pass, and were back again in their old position almost before you could look round. If a cart came by they gave it rather a wider berth, and returned to their absurd amusements the moment it had passed. They were more wary of people

walking, and generally flew to the meadows before you were within fifty yards of them. I thought at first that it would be quite easy to stalk them with a camera on the open road, where they would have made good photographs, but they eluded me; so I put up a tent in the midst of them on the "hill" in the meadow. There were nine bare places within range of my camera tenanted by as many Ruffs; as each bird's plumage is distinctive, I knew them all individually; each one usually resorted to his own special patch. The grass around this area was several inches high, and consequently the Ruffs do not show up as distinctly as they would have done by the roadside. Each little hill was about eighteen inches in diameter, and absolutely devoid of any vegetation. The Ruff is either as motionless as if he were carved in stone, or else he is vibrating like a toy on wires. It is the rapid, restless motion of the feet, and the dancing which beats down the grass and hardens the ground in these circular patches.

The birds paid no attention to my tent, although the wind was so strong one day I could hardly keep it up, and the canvas rattled and roared like a ship in a storm. As a matter of fact, Ruffs are supremely indifferent to anything except their own concerns. The wind seemed to excite them, for on that day they sparred a great deal; while the next day, which was oppressive and thundery and very dull, the birds slept and were only intermittently active.

When excited the Ruffs' movements are extremely rapid, they rush round with the regularity of a clockwork mouse; when several are fighting together, they are an indistinguishable whirr and blurr of feathers. I exposed six dozen plates in three days, with only about three satisfactory results; the rest show nothing but a smudge. But most of my time was spent in wondering what it all meant. They filled me with amazement. Why do they behave in this ridiculous manner, and what is the meaning of their extraordinary behaviour? How did it originate, and what is the use of it? Viewed dispassionately, the entire get-up of a Ruff in nuptial plumage is absurd in the extreme. But you cannot view them dispassionately for long; they arrest attention and keep you on the *qui vive*, for it is impossible to tell what the next move will be. No photograph can begin to do justice to the variety and wealth of colouring of the plumage. Many of the tippets are very lovely. Rich chestnut and black, black and white, soft buffs and browns, and occasionally pure white, with ear-tufts to match—these colours are harmonious and do not detract from the birds' dignity. But when you get a silver-coloured tippet and white ears, then the effect is ludicrous.

I did not see Ruffs fighting at the beginning of the breeding season; but certainly, throughout the time I watched them, their whole attitude struck me as a pose. I never saw anything approaching the passionate display and fierce fighting that characterizes the Moor-hen. On no occasion did I see even a feather fly; and though they definitely made lunges at the warts on each other's faces, I did not see any blood drawn. I have never heard the Ruff utter any sound. The noiselessness of the display is one of the reasons why it seems so unreal; you are watching a dumb show.

The Ruff in the foreground of the illustration was only four feet from my tent. He invariably returned first, and seemed to be "cock of the walk." He seldom moved from his own hill. Twice a day during three days, at 11 a.m. and 2 p.m. (solar time), a Reeve alighted close to him. All the Ruffs on this hill saw her coming, and bowed themselves to the ground as she approached, and remained in this devotional attitude for some seconds after she left. Each day she took her stand by this Ruff, she did not approach the others. After her departure the six or seven other Ruffs would suddenly straighten themselves, and either begin

to dance, or else two would fight. Sometimes all fought, and there ensued a characteristic whirl of wings; if two only engaged, the rest looked on at the duel. But as far as my limited observations went, the fights were sham fights, and mere exercises in the art of fencing. The arrival of an extra bird on the scene generally meant a display of energy on the part of all the Ruffs which had taken up their positions. They either rushed at him, or else gyrated on their own little hills; if all the hills were occupied, the intruder flew away.

I saw a number of nests; they were generally placed alongside the dykes, where the ground is slightly raised. The Reeves here were very tame; it was difficult to keep them off the nest while you were erecting your tent, and they slipped back and snuggled down in their rather deep nests long before you were ready for them. The Reeve's life is a busy one, and there seems no room in it for fear. The beautifully pencilled plumage harmonizes well with the lush green grass and rushes. These so-called meadows, where the Reeve and many others of the Texel birds nest, are charming in May and June. They are gay with pink thrift and sea-aster, for the flora is largely of a maritime character. I was reproved for calling these fields "marshes." They would be marshes at home, but in Holland they are reclaimed lands. The Reeve allows herself very little leisure; when on the feed she feverishly pecks insects from the grass, and never wanders far from her nest.

Both Ruffs and Reeves are numerous everywhere in Holland where there is suitable breeding ground; they are looked upon as game, which seems a pity. However, the Dutch have learnt wisdom from our mistakes. Their wealth of bird-life must inevitably decrease before the advance of their painstaking and thorough reclamation of the land, which is very different from our casual efforts; therefore, large reserves have been purchased within recent years, where the birds may breed in peace. I owe a debt of gratitude to the controllers of these sanctuaries for letting me wander at large, for alas, the Englishman is regarded with considerable suspicion! As one eminent Dutch ornithologist remarked to me: "We preserve our birds for the English to steal their eggs."

Anyone who is unable to visit the Ruff in its native haunts may yet derive a great deal of entertainment from watching it in the Waders' aviary at the Zoological Society's Gardens. The best time to see Ruffs there is during late April and early May. They have a curious habit of arranging themselves round the shallow water, where, bending down they gaze like Narcissus at their own reflected images. They will remain motionless for several minutes, and then suddenly the two Ruffs which happen to be nearest together will attack each other, and after a little harmless fighting each bird again assumes its former devotional attitude.

During the autumn the majority of arrivals in the Broadland appear to be Reeves; occasionally both sexes are seen together, but as a rule the little parties of immigrants consist of all Ruffs or all Reeves. They usually begin to arrive during the first week in August, but I have seen them on July 27. When on the wing, both sexes are easily distinguished from the Redshank by the absence of white on the wings. Their flight is swift and Tern-like, especially that of the Reeve, for she twists and turns at times almost like a Snipe. The male, without the distinctive nuptial plumage, can only be distinguished from the female by his larger size.

IV THE LAPWING

VANELLUS VANELLUS (Linn.).

PEEWIT, GREEN PLOVER, WYPES (NORFOLK), HORNPIE (SUFFOLK).

TWENTY years ago the Lapwing was plentiful on the marshes all round Hickling. You could not walk anywhere between Hickling and Horsey without being mobbed by numbers of irate male Peewits. Now the majority of Lapwings nest further away, on Martham Holmes and similar mown and cattle-fed marshes. The cause of this decrease in the number of breeding Lapwings is as usual attributed to the scapegoat of "increased cultivation." But the district with which I am most familiar is less cultivated than it was formerly, yet the number of nesting Lapwings has steadily diminished. Fifty years ago in the Golden Age of farming, much more land was brought under the plough, and corn was grown right up to the edge of Hickling Broad on the south-west side, where ridge and furrow are still easily traced. If you talk to the oldest inhabitant, he will tell you that in his young days his wife and daughter used to "fill their aprons" with Lapwings' eggs, daily, during the breeding season. Now that this ground has more or less reverted to marsh, there are seldom more than eight or ten pairs to be found breeding there. I say more or less reverted to marsh, because land which has once been cultivated cannot absolutely return to its pristine condition.

There are two great factors, which in recent years have largely influenced the status of bird life on the marshes—namely, motors and the Great War. Of the two the advent of the motor will probably produce the more lasting effect.

Time was when the marshes were regularly mown and cattle fed every year. Formerly there was a sale for the marsh haysel; the coarse rank herbage was cut up into chaff and sold as food for the London bus horse. Now that the horse has nearly disappeared from the streets of our cities, there is no sale for the marsh grass, except for litter. Consequently the marshes are now mown intermittently, and some of the so-called meadows have reverted, and their rough herbage is stronger and coarser than ever. Cattle no longer feed in them, and in many places the growth of reeds and tall herbage has entirely knocked out Waders. The birds which most of all feel these economic changes are the Lapwing, Snipe, Redshank, Ruff, and Yellow Wagtail. The Redshank is better able to adapt itself to the altered conditions, because it is less particular than the Lapwing in its choice of a nesting site.

On the other hand, this reversion of a large area, especially during the Great War when the marshes were entirely neglected, caused a temporary increase in the number of Bitterns, Warblers, and Corn Buntings.

Indiscriminate eggng, and the high prices obtained for early clutches have also, both here and elsewhere, contributed to the decrease of the Lapwing. Casual sportsmen too, unacquainted with the movements of Lapwings, imagine that the big flock of winter visitors will remain to breed. It is difficult to discriminate between the hordes of aliens and the home breeding species because of the overlapping. Hence,

if the Peewits are shot during the winter and robbed in the summer, it is equivalent to burning the candle at both ends. This double process of extermination still goes on in many parts of the Broadland area. It was once my good luck to meet a Northumbrian farmer who protected Lapwings all the year round. This was many years ago, but I shall never forget the sight of the vast army of Peewits which enveloped us as we walked across their breeding grounds. My companion was fishing in a lonely lake, while I wandered at will, over what might have been dreary and desolate country, but for the companionship and continuous uproar caused by birds. It was early May, and the Lapwings were at the height of their rollicking aerial displays. The moorland and sky were one vast tilting space, where the male birds worked off their superabundant energy while their mates brooded and watched. This area is now (1924) entirely devoid of Lapwings.

It is a pity so few agriculturalists appreciate the Lapwing. It is one of their best allies, and its record is absolutely clean. It rids the ground of snails, slugs, worms, beetles, and the larvæ and pupæ of insects, including the injurious leather jackets. On the sea coast I have seen the Lapwing pick up various mollusca and turn over the seaweed above high-water mark in search of a whitish grub which hatches out in myriads throughout October and November. This grub is much sought after by all Waders and insect-eating birds.

During the winter of 1914-15 I had many opportunities of observing the habits of the Lapwing in Holy Island, where, owing to the small area of cultivated ground, it could be studied with comparative ease. There was a marked difference between the behaviour of the home-breeding Lapwings and those which eventually left for other and probably more northerly breeding quarters. This difference was most marked during February and March. Then all were busy courting and displaying, but while the native birds repaired to their nesting areas early in February, the alien Lapwings still kept together in flocks. These flocks avoided the breeding grounds, as they were fiercely driven off if they ventured to approach territory that was already annexed. For the most part these immigrant flocks associated with Golden Plovers. These latter birds throughout the winter kept to certain fields. On fine days the Lapwings were always in evidence, but during rough weather you almost had to kick them out of the ditches and furrows. There was one big field of mangolds which afforded fine cover for Lapwings and Curlew in February and March. If you had sufficient energy to tramp across this muddy expanse you surprised many a Lapwing indulging in a quiet bathe beneath the rank overhanging leaves. Sometimes the furrows were half-full of water; here the various species of Waders hoped to be at peace, and when I suddenly invaded their privacy they stalked away with indignant and angry cries.

In the Broadland, the home-bred Lapwings leave the immediate vicinity of their breeding grounds from the end of June onwards.* During July and August, both young and old collect on the grazing marshes, where cattle have been feeding throughout the summer. They also resort to those marshes where the grass is crisp and short. As September approaches these flocks are swelled by numbers of migrants. Towards the end of the month, most of the homebred birds have departed. Throughout October there is a steady migration of Lapwings from east to west; on some days large numbers pass.

* From June 24 until mid-July, young Lapwings might be seen passing Scolt Head in a steady stream all day long, going west.



"AN ATTITUDE OF SPLENDID DEFIANCE."



THE COURTING DISPLAY OF A LAPWING.



A PROUD EXPECTANT MOTHER.

As long as the weather is fairly mild, flocks of Peewits remain on the marshes. When rough weather comes they betake themselves to the uplands and ploughed fields during the day, but in the evenings they often fly down in numbers to bathe in the wet marshes where the herbage is short. Sometimes they remain in the vicinity all night, returning to the uplands early in the morning. They are very susceptible to frost, and seem to know by instinct if it will last long. The Marshmen will tell you that if it is sharp for a night or two, and the Peewits do not go, you may be sure that a thaw is close at hand. During hard weather they resort to the marshes near the coast, or to tidal estuaries.

As January draws to a close, there is renewed restlessness amongst the Lapwings. The home birds begin to return, though bad weather may force them to beat a retreat for a time. Yet as soon as the first warm February days appear, back come the Peewits, and soon their welcome cry rings across the Broad. It is then that the great silence of the marshes is really broken. There have been intermittent voices of Duck, and Coot, and Moor-hen all winter; and for two or three weeks past the Bitterns have been tuning up. The Lapwings bring new joy, as once more the cycle of their lives is set in motion. Not that the winter flocks are altogether silent; but there is nothing inspiring about their ordinary call-note, and the vision of a flock of Lapwings wheeling white against a leaden sky emphasizes the bleakness of the marshland winter.

Much has been written about the courtship of the Lapwing, and even when it has been analyzed to the uttermost by the cold searchlight of science, it still remains one of the most beautiful romances in the bird world. The breeding cry, the posturing, and the aerial tumbling are the very essence of spring, and the incarnation of the *joie de vivre*. Tennyson had no right to call the Lapwing "wanton." He is every bit as exemplary a character and as good as the mildest Turtle Dove that ever cooed monotonously in the hot summer twilight, and every bit as faithful; and moreover, he is infinitely more amusing. All the year round the Lapwing lives his life in the open. He loves a wide horizon and has no reserves.

About the middle of March the male may be seen beginning to "scrape." This is the average time in Broadland, though individual birds begin their courting displays earlier. I am inclined to think that this "scraping," which is the display proper, takes place on the breeding grounds only. The male alights, and running along some little distance with wings erect, suddenly falls forwards and begins to work his body up and down and from side to side. In this way, if the ground is at all yielding, a shallow depression or "scrape" is formed; meanwhile the tail is held erect, so that the bright brown under coverts are brought into view. I have never seen this display take place except in the presence of a hen Lapwing. Once or twice I have seen the male bird suddenly stand erect and stamp or scratch the earth with his feet. I have not seen this action often enough to decide whether it merely formed part of the courting display, or whether the bird was actually shaping the nesting hole.

By far the most beautiful display of the Lapwing is the aerial tumbling. This may or may not be a part of his wooing. Very often it is indulged in by several males together, both before and after pairing has taken place. Sometimes the males seem to assemble for the express purpose of indulging in mere play, after the manner of Ruffs, Sheldrake, and various other species.

As a rule, these aerial gymnastics attain their highest pitch of perfection when indulged in for the benefit of the female *after* she begins to brood. The male rises

some little distance with rhythmic wing-beats and makes what—for want of a better word—we call wing-music; then he suddenly shoots upwards and swoops down, turning a partial, and very often a complete, somersault. Sometimes he hurls himself to the ground, and just as you think he must inevitably dash out his brains he recovers and floats upwards, uttering his wild cry of joy. I have seen the male dash to the earth with such vehemence and so close to the brooding female, that she has actually winced. Perhaps she too sometimes fears lest her mate's headlong descent should end in disaster. Yet this *abandon* of the male seems to be a fearful joy to both birds, for the female will often watch the male as he tumbles above her, or dashes off in pursuit of other equally irresponsible companions.

The male Lapwing takes himself and his responsibilities very seriously at times. He is always stout-hearted and frequently truculent. If he considers he has rights to a certain amount of frontage near the water, he guards this most jealously; no bird is allowed to wander over it even in search of food. Day after day certain Redshanks and Ringed Plover tried to cross a strip of foreshore by the mere in Holy Island which formed part of a Lapwing's breeding area. The intruders approached from the eastern side, and were generally too intent on their own business to mind anything else. In spite of being driven back twice a day, these birds essayed continuously to probe the forbidden ground in search of a meal. The Lapwing, screened by a tuft of coarse rushes, would lie in wait for trespassers. Directly a bird stepped into his domain, down he dashed and beat the enemy off with his wings. Even a solemn and dignified Heron was never allowed to pass unchallenged, but invariably had to wade further out, if he wished to pass. The Lapwing however met his match in the Jackdaws and Hooded Crows. These he attempted to drive away, but they regarded him with supercilious contempt and even bathed in his pool, wholly regardless of his rage. But this Lapwing's vigilance redoubled, and his pride and consequence knew no bounds, when it was his pleasing duty to escort his mate to her bath. Standing on the bank in an attitude of splendid defiance, he mounted guard over her while she fed and washed, and dared any other bird to approach.

I doubt if the male Lapwing broods much. I have watched the females on their nests through my field-glasses, and seldom seen them change places. But, of course, individuals vary. The first Lapwings I ever photographed certainly took turns in brooding, as I obtained photographs of both. The male had a fine black gorget, while that of the female was interspersed with white. Birds which habitually nest in exposed situations need a vigilant sentry to mount guard; this duty the male Lapwing carries out to perfection. He makes a loud outcry if an intruder approaches, and does his best to lure the unwelcome visitor away. When the young are hatched both parents flap wildly round one's head, then fly, or run short distances, returning to the assault and swooping down after the manner of a seagull. Sometimes the Lapwings will hang in the air dangling one or both legs, and drooping their wings in a deprecating manner. I have not seen the Lapwing feign injury as the Ringed Plover does.

The young in the nesting down are delightful little creatures; their broken banded colouring is very protective. They are extremely active, as indeed are all baby Waders, and can swim quite well in the shallow pools. They are fed on insects at first, and if the nest happens to be on dry ground, the fledglings are led to the shallows as soon as they can run. Later on I have seen them pecking at worms, the larvæ of insects, and small mollusca. The adult Peewit also devours a good many worms.

I once kept a maimed Lapwing for some weeks in my garden. He had been shot in one wing; so I took him to the village doctor who chloroformed him, snipped off the broken wing, and cleaned and dressed the shattered humerus which was very foul. The bird, by the way, took a tremendous lot of chloroform. In a day or two he regained his glossy plumage, put on flesh and began to get tame. Eventually, he got away in the night, so I lost him. I used to watch him worm-hunting for hours. He would stand motionless with his head on one side listening intently, then suddenly dip down and drag a worm out of the ground. It seemed to me that *sound* rather than *sight* aided him in his hunting.

Towards dusk on a summer evening I have seen Lapwings gather together in a favourite shallow pool and stand in a meditative attitude for a long time. They did not bathe, for birds like to bathe and preen in the sunlight. They just stood on one leg most of the time, and called to each other at intervals. I happened to have a tent erected by this pool, and used to stay on in it at dusk in order to watch this evening gathering. There was something curiously solemn about it. Sometimes twenty or thirty Lapwings would come in, one or two at a time, and take up their respective positions. It was like some solemn ritual. Nothing ever happened. There is of course no need for the so-called dumb brutes to communicate by sound; but it was to me a new trait in the character of the restless turbulent Lapwing, this almost silent social gathering at the close of a May day. The picture was perfect in its setting, for the wide shallow pool was hidden in an amphitheatre of sand hills which gleamed red-gold in the afterglow of sunset.

V

THE WATER-RAIL

RALLUS AQUATICUS, Linn.

I HAVE lived amongst Water-Rails for many seasons, yet I should hardly know we were near neighbours, but for the fact that they announce their presence in tones so hideous, that I have a perpetual grievance against Nature for endowing so charming and dainty a bird with such a harsh voice. The extraordinary sound it makes is locally called "sharming," or "groaning." When once heard, it cannot be forgotten. Sometimes this sharming bursts forth with a suddenness that is decidedly startling when you are alone on a wide marsh. I remember how it made me jump the first time I ever heard it, and no one had warned me of its harshness.

The Water-Rail was one of the first birds I ever photographed. I was hidden under an uncomfortable heap of litter when the groaning burst forth close to my ear, and I thought some unknown beast was bearing down upon me. However, just then the female Rail peeped through the rushes near her nest, and again the groaning was repeated, but close to the female, and so I concluded it was the male's way of expressing emotion. He has a quite nice call-note, "Kek, kek, kek," rapidly repeated, which may be heard sometimes all over the marshes, especially in the summer evenings. It is most noticeable about 10 p.m. (solar time) during May and early June.

Although many otherwise attractive birds are cursed with raucous voices, yet every species I know, including the Water-Rail, possesses a language which is peculiar to, and coincides with, the duration of the nesting season. It is an intimate baby-language capable of exquisite inflections, which can only be heard at close quarters, and is quite distinct from the ordinary call-note, song, or alarm notes, which are the ordinary *outward* means of expression between adult birds. Even the harsh-voiced Shrikes, Grebes, and Rails are able to express a whole gamut of emotions in soft persuasive tones, and these are a constant revelation to anyone who tries to glean some facts about the intimate home-life of these shy wild things. This kind of language is oftenest spoken to the young, or by the parents when discussing their babies; but it is also used by the adults when love-making in quiet places.

Though I have never seen the actual courtship of the Water-Rail, it was once my good luck to watch a female making love to her mate. This apparently is permissible even in well-conducted avian society *after* the courtship, and was doubly gratifying in this case because the pair had outlived the first hey-day of romance. There was a nest in the reeds containing seven eggs, in which the young were already feebly rapping for admittance at the gate of life. The hen left these treasures for a few minutes, and running up to her mate began walking round him, uttering little soft crooning notes, rubbing her bill against his, and taking short runs to and from him. Then, standing in the sunlight, she began preening her feathers, but seemed unable to reach those at the back of her neck. This may merely have been a feminine ruse to induce her mate to dress them for her. Anyway, he responded with evident

pride and pleasure, drawing each one carefully through his brilliant red bill, and uttering funny little grunts at intervals, which performance seemed vastly appreciated by the hen. Then she suddenly remembered her eggs and paddled delicately back to them. But *she* was a Water-Rail of parts, whose story will be continued later on. I was able to see this little byplay, because the whole of the rand had been mown close up to the reedy swamp on the edge of which the Rails had nested. When unsuspecting, even these shy birds like to play about and preen themselves in the open, but they make for cover immediately if disturbed. On this occasion, however, I was hidden within my reed-thatched screen, and the birds were not aware of my presence. When the Water-Rail is walking, the tail is jerked up and down like a Moor-hen's, but the Rail is less consequential and altogether more elegant than the Moor-hen. The Water-Rail looks very slim when running, and its body is extremely supple; in fact, all its movements are beautiful. The shy, doubtful hesitancy with which it peeps out from the reeds is very alluring. If the coast is clear, one foot is advanced and the sinuous neck and head are lowered and twisted from side to side, then the Rail stealthily advances step by step, alert and watchful. It is an annoying bird to photograph because of the way in which it skulks behind the bulky nest, every now and again darting its head out and scanning its surroundings. Sometimes all you can see of the Rail is the bright red bill, which it thrusts inquisitively round the corner and as suddenly withdrawn. Its hearing is preternaturally keen. The Water-Rail's wariness and exclusiveness only lend it additional charm, and that is why its loud sharming arouses emotion in the bird-lover which even the sweetest marsh Warbler cannot awaken. It is the charm of the elusive and unknown.

The Water-Rail's nest is made of dead reed, or sedge leaves, whichever happen to harmonize best with their surroundings, and is lined with other dead leaves of the same plants. Sometimes the nest is loosely constructed, at others the leaves are laid so carefully that they form a kind of woven matting. It is always well concealed amidst dense aquatic vegetation and generally in very wet places; this latter fact may account for the height and bulk of the nest, which is large for so slight a bird, for the water level on the marshes varies considerably. The first time I photographed a Water-Rail my surroundings were comparatively dry. Three days afterwards the water was over my shoes; it had what my venerable conductor called—"histed up." Probably the wise Rail is prepared for such emergencies.

It is rarely indeed that one catches a glimpse of the tiny black downy nestlings, so secluded are their lives. Like other young *Rallidæ* they are very active and able to leave the nest when only a few hours old. They are brought back at night, and, if undisturbed, seldom wander far away from the nesting area during the first week or two of their lives. The note of the newly hatched young is a faint "Cheep" hardly to be distinguished from that of the nestling Grebe.

It was not until 1918 that I succeeded in getting a photograph of young Water-Rails. That year a nest was (luckily for me) mown round, so that with caution I was often able to see the old birds when they crossed the mown marsh. I was also able to catch the young before they dispersed. But directly I approached the nest the eight young vanished, and it was only after prolonged search that I managed to round up six. They were all near the nest, just simply shamming dead, and crouching in holes amongst the wet sedges. They were exquisite to the touch, like balls of black plush. The female Rail tried to lure me away and shammed injury all the time, while the male uttered loud "Tacks" from a sheltered bank. Having photographed

them I hid myself, then the parents lured the young to a bank and took them away.

The food supplied to the newly hatched young is difficult to determine, because partly regurgitated. The little ones soon learn to forage for themselves, and are taught by their parents to search after aquatic plants, small mollusca, worms and slugs. The old birds are particularly fond of the roots of watercress. The varied and imperative cries of the little Water-Rails may be heard frequently, but the territory of one family seems extensive, and is always difficult of access. As their habitat is not amongst the thick reed-beds there is no following them in a canoe, and the moment one attempts to pursue them on foot through the watery marshes the baby cries cease and the whole family simply vanishes. Water-Rails are not given to gossiping with neighbours of their own species, because they never seem to have any; consequently, there is none of that garrulous squabbling going on in the reeds, which makes night a joy to the other *Rallidæ*. Nevertheless amongst themselves they chatter incessantly, and whenever I hear queer little cries which I cannot positively identify, I always conclude that these proceed from a merry family of Water-Rails.

Some years ago I had a Rail's nest under observation for a month—that is to say, from the time the first two eggs were laid until they began to chip. As I was specially anxious to obtain photographs of the young when hatched, I only paid one visit to the nest between June 16 and 27, when two of the seven eggs showed signs of breaking. Early on the morning of the 28th I went again, hoping to find the chicks out, and to secure a photograph of them before they slipped away. However, the female was still brooding, but over five eggs only. Her whole attitude showed intense nervous excitement which apparently had nothing to do with the proximity of my camera. Almost as soon as I was ready for her the bird came running back to her nest—not with doubtful hesitancy as on previous occasions, but with an entirely self-absorbed businesslike air. During the whole of the first two hours while I was watching, she incessantly uttered a curious “purring” noise, exactly like the sound a contented happy squirrel makes when it comes to be petted. This sound seemed to be produced by spasmodic movements of the body muscles, for there was absolutely no movement of the throat, only a continuous slight jerking of the tail. Whether running to the nest or brooding, this purring was unceasing, except when now and again she uttered the usual sharming or groaning whenever he came near. The male bird also purred. Twice he fed the hen on the nest, but owing to the thick tangle of weeds I was unable to secure a photograph of the two together. I also heard a faint “Cheep, cheep,” which led me to suppose he had with him the first newly hatched chick, though I did not actually see it. Once the male changed places with the female and settled down to brood, but the sharp rattle of my shutter drove him away. I should not have known any difference between the two birds had they not changed places under my eye, when by a closer observation of the male I noticed that his bill was considerably longer, and the upper mandible a much brighter red than that of the female.

The moment her mate fled the female returned, and seizing one of the already chipped eggs, she enlarged the hole, and then contentedly settled down purring and jerking her tail all the time, a position she maintained for an hour while I watched. It seemed to me that my presence was not sufficient to account for her subsequent extraordinary behaviour. As a rule, the Water-Rail is one of the most wary of sitters, more keenly alert and sensitive to the slightest sound than any bird I know; but on



THE WATER RAIL BROODING IN CONTENT.



SHE REMOVES HER FIRSTBORN,



—AND COMES BACK FOR THE SECOND.



SHE TAKES ONE NOT QUITE HATCHED

J. F. & J. W. 1913



—AND STILL ANOTHER BEGINNING TO HATCH.



AND LASTLY AN UNCHIPPED EGG: THE GREATEST
EFFORT OF ALL.

this occasion, she more than once allowed me to change my plate without disturbing herself in the slightest. The nervous excitement she did display was purely maternal; wrapped in her own meditations, she seemed lost to outside influences. As for me, I was keenly interested and not willing to disturb her; however, seeing the keeper, James Vincent, approaching at the end of the appointed two hours, I dropped the shutter. The Rail did not move till footsteps approached. I asked Vincent to examine the eggs and report progress. Two of the young were out, and he removed the broken shells. Then the excitement began. The female returned, stood on tip-toe, peeped into the nest, and quick as thought seized one youngster by the neck and carried him off. So rapid and unexpected was this manœuvre that I had barely time to secure my picture, but the attitude in which she is caught shows to advantage the real elegance of the Water-Rail. No sooner had I changed my plate than she was back again, and this time seized the second unfortunate and bedraggled-looking chick by the head and whisked him off. She then returned for the third, not yet out of the shell, and seizing him by the shoulder removed him shell and all; and the fourth also in like manner. There remained only one addled egg, but though this formed a very difficult task, after several unsuccessful efforts she succeeded in getting a firm grasp of it and disappeared. All the last five photographs were taken in less than ten minutes.

After this the bird returned twice and just peeped into the nest; being apparently satisfied as to its emptiness, she returned and we saw her no more. We diligently searched the reeds for the missing birds, but found only the addled egg some eight feet away, and one half-fledged chick that must have been in the water many hours—evidently one of those removed from the nest on June 27. We replaced the egg, covered up the nest and went away, hoping that like the Great crested Grebe and Coot, the Water-Rail would bring back her young to the old home for a day or two. But on the 29th the nest was wet and cold—evidently there had been no return, and though we made a long search in its vicinity, no trace of the birds, old or young, could be found.

I can only suppose that this very exclusive Rail objected to the publicity entailed by photography, and so decided to remove her brood from all contact with the outside world. A Mallard Duck once behaved in a similar fashion. Apparently birds as well as four-footed animals sometimes resent intrusion into their domestic affairs.

In 1919-20, and again in 1923, Water-Rails seemed very numerous. They were "sharming" all over the marshes, while the call-note, "Kek, kek," dominated the hour after sunset; but as a rule the actual number of breeding birds in a given area is not great, although a good many young are reared in one season. Home-bred birds are seldom seen in the immediate vicinity of their nesting grounds during the winter months, but the Water-Rail is fairly faithful to its old breeding areas and generally returns to these in the spring.

A considerable movement takes place amongst this species in the autumn and spring, but it is impossible to say whether homebred birds actually emigrate or not. Their numbers are undoubtedly augmented by foreign arrivals during the autumn and winter. The Water-Rail is more in evidence during the winter months, partly because there is less cover, but largely owing to want of food; hard times and famine tend to break down even the Rail's exclusiveness. As a rule, in the winter, they may be found haunting the reed-fringed dykes which intersect the inside marshes, where they are less likely to be frozen out. The sudden firing of a gun sometimes sets several Water-Rails sharming together and so betrays their whereabouts. When

frozen out of the marshes, they resort to running ditches near farmyards, and even venture into gardens in search of green stuffs and refuse food. Mr. Bird tells me that during the hard winter of 1878-79 he shot twenty-three Water Rails in less than three weeks from about half-a-mile of ditch, and on one occasion three crossed the road one after the other. During the mild winter of 1922-23 I did not see a single Water-Rail in the open, but sometimes caught a fleeting glimpse of one crossing a dyke. So shy and furtive is this species in its habits, that although plentiful on the marshes, yet its inner life is almost a sealed book.

VI

THE MOOR-HEN, OR WATER-HEN

GALLINULA CHLOROPUS (Linn.).

MOOR, FROM ANGLO-SAXON *Mor*, "A Bog."

THE Moor-hen is resident and very numerous as a breeding species in the Broadland, where it is however far shyer and more unapproachable than in cultivated localities. It nests all round the Broads as well as in the water-ways, but, unlike the Coot, is seldom seen in open water. In fact but for its well-known call-note, "Ker-ruk," the casual observer would hardly be aware of its existence on such a wide space as Hickling Broad. The roll-call of the Moor-hens is, however, one of the regular night sounds for which I listen at all times of the year. With unfailing regularity just about 10 p.m. (solar time) one bird will start crowing, then the call is repeated by one Moor-hen after another, until apparently each in his turn has answered to the challenge, and so the cry encircles the whole Broad for about ten minutes, after which there is silence.

In all probability Moor-hens pair for life; this at any rate is the case with birds habitually breeding on small ponds, but the male woos the female with considerable vigour each spring, and in large areas rival males fight fiercely. They approach each other with lowered heads, and spread out their tails, so that the white under coverts form a fan, which is evidently intended to impress the adversary with awe. I have seen one enraged Moor-hen whirling round on his own axis and at the same time round his rival, with such speed that the entire bird seemed a revolving white ball. On these occasions the red frontal plate seems to gain an added brilliancy. If this display has no effect upon his opponent, the two turn and fight with beaks and claws until one or the other flies away. The victor then swims round and round his would-be mate, and with many bows and jerks of his tail places himself and his prowess at her service.

Sometimes when two rival Moor-hens come to grips, the ensuing struggle is no mere play, for, with feet closely interlocked, they hold on to each other till muscles and joints crack. The victor will drag his enemy through the water and half drown him before letting him go. This is accompanied with much screaming and splashing, and the din of battle is such that the waterside is no place for a contemplative person.

On May 25, 1915, I watched two pathetic little Moor-hen warriors, maimed, defeated, and companions in misfortune, both striving to snatch a meal unobserved. They hopped down from a field to the edge of the mere on Holy Island, taking cover and crouching every few steps. I was inside a little hiding-tent, close to which the injured birds kept all day, as it hid them from the Moor-hens on the mere. They took refuge behind the tent when alarmed, and then peeped round the corner to see if the enemy was pursuing. One bird was minus a foot, while the muscles and tendons were torn right up to the thigh. The other had one leg twisted outwards from below the "knee," while both birds were feeble and shrunken and sadly lacked the dapper

self-satisfied air characteristic of Moor-hens in general. They kept near me all that day, but I never saw them afterwards. Maybe they forsook the mere with its merry love-making, and took refuge in the surrounding ditches until restored to health, for it is wonderful how maimed birds *do* recover sometimes; but in all probability they died.

When a male Moor-hen has duly impressed a female with his superiority to all rivals, he contrives to drive her from the open water, and then pursues her in a silent and furtive manner up and down reedy byways or unfrequented ditches. But inasmuch as they may not trespass on another bird's area, the female doubles and twists and goes over the same ground several times. When tired of the pursuit, she comes to a standstill, and the pair arrive at a good understanding. After an interchange of short syllables, expressive of mutual admiration, accompanied by swift jerks of their tails, they either disappear into the reed-beds or prosaically begin to feed.

The Moor-hen's tail is at all times expressive of emotion. When sauntering along on land intent upon his own concerns, he carries it jauntily erect, and constantly jerks and expands it so that the white feathers are brought into view; there is a great deal of swagger about the Moor-hen's gait. If alarmed, however, this consequential air is suddenly abandoned, and the bird runs away with extraordinary fleetness. If the Water-hen is a person of consequence on land, he is even more so afloat. When he is swimming each flirt of the tail is accompanied by a corresponding jerk of the head; but if pursued all dignity is then thrown to the winds, speed degenerates into a scramble, the bird takes to its heels and scuttles along the water for some distance, and if cover is not within easy reach it finally takes wing. Or it may dive, in which case the Moor-hen can remain submerged for some time by clinging on to weeds by means of its feet, the bill alone appearing above water.

The Moor-hen is jealous of its breeding area, and defends this vigorously against marauders of its own species. Coots, however, are more than a match for the shy and dainty Water-hen; consequently, they bully the weaker bird considerably. But I have seen even a Coot driven away by a Moor-hen. However, in these wide marshes the Moor-hen's breeding areas are not circumscribed; and if ejected by foes, human or otherwise, another nesting-site is readily found. There are countless ditches and vast areas of marshland bordering on the water's edge, and if a dyke is cleared out, or a rand mown, these birds need not go far afield to find an equally suitable situation. Consequently, I have seldom found their nests here in trees, or on partially submerged branches, as is often the case in cultivated districts. The supplementary nests of the Moor-hen are used for a variety of purposes, but chiefly, I think, as sentry posts for the male when he mounts guard, and later on as resting-places for the young. Most aquatic birds require some kind of platform, where they may sun themselves and preen their feathers after bathing—and they bathe so very frequently. When I first settle into my boat each season, I always have my bay trimmed up and encroaching reeds cut down and gathered into bundles and thrown into the reed-beds near, so that the resident Water-fowl may have extra dressing-rooms. Being Sybarites by nature, they always make use of those facing the sun both morning and evening, so accommodation is provided for them east and west. Various species make use of these platforms, but the Moor-hens stick to their own, which are partially concealed within the sheltering reeds. This, however, is largely due to the fact that directly they annex a dressing-place in the open, an ever-watchful Coot immediately drives them away. On August 27, 1913, at 5.30 a.m., I saw a young Moor-hen daintily walk up

on to a preening-place that really belonged to the Coots, and begin to dress his feathers, but a Coot swam up and merely lowered his head and looked at the Moor-hen for a few seconds; even this threatening attitude was sufficient to scare away the intruder. That year the Water-hens showed considerably more courage than they did in 1914, and by forestalling the Coots in the matter of early rising, managed to preen themselves on these platforms unmolested.

The supplementary nests are, I think, rarer in Kent and Sussex, where there are dry shelving banks sloping to the water's edge; or trim lawns upon which the Moor-hens can run about. This species habitually spends more time on land than the Coot does; and as in the marshland there are acres of water and reed-beds with little or no land, and the river banks are often deeply indented by the rise and fall of the tides, temporary refuges are necessary both for adults and young.

If it were not so common, we should regard the Moor-hen as one of the handsomest of our native species. Its purple and brown suit, red and yellow bill, green legs and orange garters, the white line along the flanks, and the white under tail-coverts—all combined make a very attractive whole.

The nestlings are dusky little balls of down when first hatched, and delightful to watch as they follow in the wake of their elders, imitating in baby fashion the consequential carriage of the old birds. When half-grown they are difficult to distinguish from young Coots at a distance, but the jerky movement of the head betrays their identity. Owing to the frequent advent of a second brood, young Moor-hens are soon taught to earn their own living, and thus become more independent than Coots of the same age. It has been stated that they even help build the second nest, and assist in feeding their younger brothers and sisters. It was not until July 14, 1923, that I saw the first family feeding the second brood, when I caught sight of one of the older birds picking insects out of a rubbish heap near my kitchen window, and doling them out to two of the babies. Later on we frequently saw them take the bread we threw to them, and hold it in their bills while the tiny ones pecked at it.

When young Moor-hens, Coots, and Grebes frequent the same reed-bed, it is very difficult to disentangle and differentiate their several piping notes, and as for trying to represent them by any written words, the thing is impossible. These notes must be patiently studied in their respective owners' haunts. Coots and Grebes retain their high treble until the birds are full-grown, but young Moor-hens soon learn the distinctive crowing call of the adult. This species seems to be altogether highly strung, for any sudden sound—thunder, guns, the clattering of dishes, or a ripple of laughter—sets them crowing.

When they are first hatched, a family party of young Moor-hens is far less in evidence than a similar party of young Coots. The latter begin to pipe at once and their shrill notes are heard continuously. But unless I keep a strict watch, young Moor-hens may be a week old before I realize their presence. Later on, at dusk, the little Moor-hens keep up a continuous chatter, but subside before the young Coots and Grebes. The adult Moor-hen is one of the first Broadland birds to awake, and before dawn there is a *reveillé* sounded, similar to, but not so regular as the evening roll-call.

The food of the Moor-hen consists of aquatic plants, especially duckweed; Moor-hens also devour small mollusca, and later on, when old enough to run about on the land, worms form a large item in their diet. I have seen these when half-grown, clambering up the reeds picking off insects, reaching up after them and sometimes

overbalancing and falling down into the reed-beds. Grass, which in other localities enters largely into their food, is not always obtainable in the Broadland, especially near Hickling, except on my island and on one or two other places. As a matter of fact, nothing comes amiss in the way of garbage; fruit they devour greedily. Those bred near my boat regularly pick over the refuse in my incinerator—a small kiln, about two feet high, built of bricks—and are particularly fond of carrying away eggshells. As soon as it is light, I know by the tapping of their bills that they are round my kennel, clearing up the remains of my dog's supper, but their shyness is extraordinary, and they vanish at the slightest sound. I once tried for nearly three months to photograph my island Moor-hens, but without success. Nothing would tame them, and while both Coots and Grebes were always more or less in evidence, the far shyer Moor-hens flew to cover at the mere suspicion of a human presence. Even the fish in the bay are more docile, for dozens of sizable rudd, bream, and roach, together with several eels, will take bread from our hands. It was not until 1921 that I succeeded in gaining the confidence of a Broadland Moor-hen. This one became the pet of the island, but unfortunately it killed itself by swallowing a worm attached to a fish hook. In other localities Moor-hens will feed regularly with domestic fowls, and run about one's lawn like tame pigeons. But since 1921 my Moor-hens have been more confiding, and frequently come for bread when called. In 1923 the adult birds would give vent to a queer grunting sound if they saw me in my tiny kitchen, and did not think that I was paying them sufficient attention.

One of the most interesting facts about the Moor-hen is its habit of taking long, nocturnal flights, especially during spring and early summer; but these midnight rambles are not of regular occurrence. It may be that the Moor-hens which indulge in these vagaries are unpaired birds roving further afield in search of mates. In studying the life-history of birds I do not think we take into consideration, as we should, the numbers of non-mated birds there must be everywhere. The frequent fights taking place during the nesting season between males, and the continual driving away of intruders, are both facts which prove that there are many unattached and roving young Lochinvars in the bird world. These would have no compunction in breaking down what Stevenson calls the "ornithological proprieties," if both the hen bird and the territory were not well defended. Most wild things, especially if monogamous, have a sense of honour, and as far as I have been able to judge, paired birds with their well-defined breeding areas seldom interfere with each other. I am not speaking of birds nesting in colonies, such as Terns and Black-headed Gulls, which are shocking examples of the fact that socialism does not necessarily mean altruism; I refer to the real landed-proprietors in the bird world whose breeding territory is strictly defined, and in all probability inherited—not necessarily by the eldest, but by the fittest.

At any rate, if a bird of either sex loses a mate in the breeding season, the loss is simply and easily repaired. One summer a Pied-Wagtail nesting in a friend's garden found her mate lying dead, having killed himself against some wire-netting. The hen's lamentations were pathetic; she pattered round and round the cock's lifeless body, stroking him with her beak, and uttering little cries of distress. This went on for two days, when the compassionate gardener buried the dead bird. Less than a week later, I watched the successful wooing of the widow by a new mate, and the nest building was completed. Whence came the new mate? Only one pair of Wagtails had frequented this garden since early spring, and it was June when this disaster befell the male. Small and irresponsible flocks of Starlings may be seen about the

country throughout the breeding season, and solitary individuals too of other species are evidently within hail when required to fill up gaps caused by death.

But to return to the Water-hen and its nocturnal exercises. Paired birds always seem so much occupied with their domestic duties that they can have little time to indulge in midnight orgies, such as the dancing parties, in which Nightjars—probably the males—and some other nocturnal birds take pleasure. After the breeding season, Water-hens in the Broadland seem to remain more or less in their own territory. During very hard weather they may be seen feeding in the wakes with other water-fowl, and sometimes they resort to houses and farmyards. Though not gregarious, in lean times little parties frequent the same feeding grounds; necessity breaks down their reserve, and to a certain extent their shyness. They suffer severely in frosty weather, and are often found frozen in the dykes and reed-beds.

Late in January, 1911, the ground being six inches deep in snow and ice, I was strolling along by a stream, when I saw a bird running rapidly away from me which looked like a Fan-tail Pigeon—a bird which did not exist in that isolated spot. I stalked it for some distance before discovering that it was a Moor-hen. The undertail coverts were spread out like a fan and brought well over the body which was depressed, and the bird managed to keep this white screen towards me, whichever way I moved. By taking advantage of every hummock of snow, it led me a long distance; now and again it crouched in a hollow and became almost invisible. Only when close-pressed and driven towards a sheet of ice did it resume its normal attitude. It was a curious and interesting performance. As during hard weather starving Moor-hens often fall victims to birds of prey, maybe this protective attitude is resorted to in order to elude capture.

VII THE COOT

FULICA ATRA, Linn.

THERE is no reserve about the Coot, it is decidedly *bourgeois* and consequently always amusing. It is essentially a bird of the open waters, gregarious except in the breeding season, and always much more in evidence than the shy retiring Moor-hen, which it bullies on every possible occasion.

The courtship of the Coot is a noisy affair, carried out with all the vigour and *esprit* of which this essentially virile species is capable. A great deal of preliminary fighting takes place, and I am inclined to think that, like the House Sparrow, *both* sexes join in the fray. Often there is a good all-round battle, but as the sexes are alike, it is impossible to tell whether the combatants are male or female.

I have seen Coots pairing off early in January. Probably these are resident birds, as from that time onwards these pairs take up their territory and separate from the huge packs of Coots which frequent the open Broad. They are constantly scrapping too with other Coots which invade their breeding areas. Fighting between Coots is at times quite desperate. When two rivals meet they tilt at each other with lowered head and extended neck, the hind part of the body is slightly raised and the wings puffed out till the whole bird resembles a serviceable wedge. Then they let drive at each other, and whichever gets up most impetus seems to win. If they ever met bill to bill, the impact would be sufficient to shiver their respective beaks, but they seem to avoid this and simply shoot past each other. Sometimes honour is satisfied by this display of prowess, but if the cause is serious the combatants turn swiftly, and seizing one another by the neck, wrestle together till one or the other gives in; meanwhile, they make a tremendous splashing with their feet. The most desperate fights I have watched between Coots generally take place about dawn. They are exceptionally early risers, and perhaps this accounts for their combativeness! On April 7, 1923, I saw a really desperate fight between two Coots while a third looked on; and even a male Great Crested Grebe followed the contest with interest. When one Coot showed signs of exhaustion, his adversary jumped on his back and drove him under water. The vanquished Coot tried to escape by swimming under water, but his relentless foe followed him by scuttling along the top of the water, and at regular intervals striking at him with beak and claws. They kept up this running fight for a hundred yards when, unfortunately, I lost them in the fog. The Grebe, attracted by the noise of battle, followed them with outstretched neck and trembling ruff as if he too were spoiling for a fight.

Coots have another method of showing fight which is both curious and interesting. If an enemy approaches or encroaches on territory belonging to another, the defender throws himself out of the water and beats upon the surface with both feet for several seconds. It is quite the cleverest trick the Coot performs, and I never cease to wonder how he can remain poised above the water, even for a short time, without the aid of his wings.



THE MOORHEN'S WOOING: THE FEMALE ASSUMES INDIFFERENCE.



A FAMILY OF COOTS.

When wooing the female, the male assumes the fighting attitude, and swims rapidly round with lowered head and fluffed out wings, but there is no angry rush. When they meet after some time spent in these tactics, they rub their bills or heads together, and that seems to clinch matters. Sometimes the male stands on a platform of dead weed, sufficiently strong to bear his weight, and slaps the water with one foot. I have seen this performance in February, but in April I have heard it long after dusk. It seems to be a part of the male Coot's spring display, and also, perhaps, it is a challenge to rivals. Even after the young are half-grown I have heard them slapping the water, not harshly, but quite gently, and it always sounds as if the old birds were laying down the law to the young ones. I well remember one bitterly cold April night (April 7, 1913), when three of us were sitting outside my boat, wrapped up in one large rug in order to keep warm. We had been watching a pair of Coots courting as long as twilight lasted, and were still waiting silently in the dark, drinking in the thousand and one sounds that make the Broadland night so mysteriously alive. Suddenly, the sharp slapping sound profaned our poetic dreams, and we broke into unrestrained laughter. It was just as if some unfortunate delinquent had received a well-deserved spanking. Whatever emotion is expressed by the action, the Coot alone knows.

These birds make use of a variety of notes which it is impossible to describe; they are short and sharp, sometimes explosive, and often querulous. The young keep up a constant piping, which is difficult to distinguish from the notes of young Grebes and Moor-hens. An irate friend after having repeatedly asked "What's that?" and invariably meeting with the brief reply "Coots," at last exclaimed irritably: "I believe that when you don't know the note of a bird you always say it's a Coot." "Possibly," was the laconic rejoinder.

Before engaging in a fight, the combatants utter a sharp shrill squeak; this note is not at all loud and immediately precedes the direct attack. It is rather like the squeak of a bat, only a little louder. One curiously explosive sound I have reason to believe is uttered chiefly, if not entirely, by the female; at any rate, she always warns the young in this way, and also calls them together, using the same sound on both occasions. The Coot has a long drawn complaining note, which sounds very mournful, and is not at all in keeping with the happy-go-lucky nature of the birds. This call may be heard at all times, but it is persistent before dawn during March and early April, and may possibly be uttered by the male as part of his love-song. But day and night these birds are always in evidence. Their family jars seem to be settled during the night, if indeed they ever do arrive at any definite conclusion with regard to the subject discussed.

The Coot's nest is a large and well-built structure raised twelve or fourteen inches above the water, and more or less floating on it, though firmly moored to the surrounding vegetation. Usually it is placed in dense cover, the Coot instinctively counter-acting its non-protective plumage. Some nests I have seen were composed entirely of dead reeds, others of dead reed leaves and sedges, the inner lining consisting of dead aquatic plants. Occasionally young green and growing plants are woven into the outside walls. One of the most beautifully situated nests I ever saw was placed amongst a mixed growth of bog bean (*Menyanthes trifoliata*) in full bloom, and *Equisetum*.

For some unexplained reason Coots like to nest near the Great Crested Grebe. I saw one Coot's nest recently only two feet away from a Grebe's, and another within four feet. Two other pairs of Coots also nested quite close to two pairs of Grebes,

making four in all, for one locality. Possibly these two shy species—for even the Coot is shy during the breeding season—derive benefit from each other's wariness; but they have nothing in common, and are never on neighbourly terms. Usually the Coot is more than a match for the Grebe in open water, as I found out to my annoyance in 1914, when the Grebes were always driven out of my bay by the Coots, though both belonged there by right.

I have elsewhere described the mutual unfriendliness of these two species when nesting side by side,* and will only repeat here an instance in proof of this. Once during the Grebe's absence the Coot was seized with feminine curiosity and a desire to pry into her neighbour's *ménage*. After casting one or two guilty looks behind her, she crept on to the Grebe's nest and, removing the covering from the eggs, proceeded to push them about, giving one a specially vicious poke. As she moved her head from side to side and seemed to be contemplating further mischief, I thought it best to release the shutter of my camera, whereupon she fled in alarm, but not before I had secured damning evidence against her. By the time the Grebe returned, the Coot was decently composed upon her own eggs. The Coot is a conspicuous-looking bird when brooding, the beautiful ruby eye flashes like a jewel and may be seen afar off; her glossy black head and neck with the broad white frontal shield on her forehead are anything but protective in coloration. When held in the hand, the body plumage is really slate-grey, and the edges of the wings are white. On grey days Coots on the water are not so obvious as they are in bright sunlight. When brooding, the Coot simply dives off her nest if disturbed, and remains submerged for a considerable time; occasionally she covers up her eggs before leaving.

Young Coots in the nestling down are delightful little objects. For the first few days they are blue-black with a necklet of orange-coloured filaments, and instead of the white frontal shield, the sides of the face and forehead are covered with bright red warts, but these decorations soon disappear, just as the red frontal patch on young Grebes vanishes after a few days. The Coot's nestling down is rapidly exchanged for a rusty brown dress, and it soon reaches the gawky stage, but improves later on, when the throat, breast, and abdomen become greyish-white and remain so until the bird is nearly full grown. The white frontal patch first appears when they are three parts grown, and develops very rapidly.

The male Coot takes a keen interest in his little family, and hovers round his mate with tender solicitude while the young are hatching. As soon as the latter have recovered from the surprise of being born, they tumble out of the nest and are taken for swims by the male. At first, these expeditions are of very short duration, but nestling Coots seem to possess more stamina than young Grebes. As soon as the family is complete it practically spends all day on the water. The chicks are not carried by their parents, though one may frequently see them resting on the broad leaves of the water-lily when tired with their exertions. During the day they retire to the nest at intervals, and are brought back to it at night until it becomes too small to shelter them. Then they are carefully rounded up to one of the many platforms near their nursery and tended by both parents until they are finally driven away to fend for themselves.

When the young are first hatched, the food supplied to them is so minute I have not been able to see of what it is composed. The male brings the food and seems merely to touch the female with his bill, but she immediately administers whatever

* *Home Life of Marsh Birds*, p. 19.

has been given her to the balls of down, as they balance themselves on the edge of the nest, standing on tip-toe and spreading out their tiny wings in an attitude of eager expectancy; the admiring father, meanwhile, cranes his neck and watches the process with great glee. The number of chicks hatched is relatively very small, and the mortality amongst these is great; one seldom sees more than four young, and often only two or three with the adults. Young Coots manage to scramble into the nest quite easily in spite of its height, there is no need for it to be lowered, as is the case with the Great Crested Grebe, because the Coots' feet are armed with claws which are better adapted for climbing. They dive when alarmed, and by maintaining a tight grip of submerged vegetation keep themselves under water for some time. Thus they avoid danger from above and elude such enemies as the birds of prey, but they must frequently fall victims to voracious pike. I have often heard a great commotion amongst the reeds near my boat accompanied by screams from the adult Coots, who dash furiously to and fro, churning up the water in their rage and agony; and by-and-by I notice that the little family is minus one.

The food of the Coot consists chiefly of aquatic plants with the small mollusca and minute animal life which adhere to them. As the young birds grow, they frequent the edges of the reed-beds, while their parents dive after food in more or less open water. The old birds then carry long straggling bits of weed to the youngsters, when each infant proceeds to pick off such succulent morsels as seem attractive; the weed, meanwhile, is constantly dipped in the water and shaken violently. Again, as far as the young are concerned, this food seems to be of a minute nature, and from the way in which the weed is picked over and discarded, one would imagine that the birds were searching after animal life. Nevertheless, an increasing amount of the weed itself is swallowed as the young grow larger. The plant most often devoured is *Glyceria fluitans*, but now and again an epicure amongst Coots will get a taste for the rare *Najas marina*. I once saw an adult Coot catch a small fish and eat it piecemeal, dipping and shaking it in the water as if it were a bit of weed. I felt sorry for the fish; death was long in coming.

Young Coots are soon taught to dive after food for themselves. The Coot is a pastmaster in the art of diving; he throws himself out of the water, and takes a clean header; the performance is inimitable in its vigour and precision. As he sometimes has to drag up the weeds from a considerable depth, a certain amount of force must necessarily be put into the dive; he usually reappears close to the spot where he went down. When disturbed, Coots will always rather scuttle into a place of safety than fly. I have never seen them rise direct from the water; they paddle along the surface for some distance, making a great splashing. If a large party rises together, the rush and the roar are tremendous. Coots are strong but heavy fliers, and when flying they always remind me of a school-boy's first efforts at drawing birds, because their wings are so exactly in the middle of the body, while neck and tail extend equally in either direction. The young Coot's first efforts at flight are decidedly feeble, and as long as they are under the parental care, they scarcely attempt to fly. But I have seen them scuttle across the water at a great pace when chastised by their parents, who have decidedly old-fashioned ideas as to the upbringing of their offspring.

It seems to me that parent birds sometimes take a dislike to one of their offspring. This was certainly the case with a female Great Crested Grebe in 1922.* In 1923 a pair of Coots in my bay only hatched out two young in May, one of which died. This

* See p. 128.

bird was tended by the male for a time; meanwhile, the female nested again, and the second attempt was a failure. Eventually she hatched out two young in mid-July. Meanwhile, the first youngster had been cast adrift, and attached himself to my tame family of Moor-hens. He lurked in the reeds by my kitchen window with the first and second brood of Moor-hens, snatched food from them (bread and scraps of fat which I gave them), and generally behaved in an overbearing manner. Yet both adults and young Moor-hens tolerated him and, except on rare occasions, seldom turned on him; he was quite one of the family. There were eleven Coots, old and young, feeding in the bay; a male Great Crested Grebe was also fishing there, and feeding one of his two youngsters. But if the derelict young Coot attempted to associate with his kind, he was driven off and sought shelter with the Moor-hens in their domain.

Late one evening the Moor-hens drove him away with angry cries and much churning up of the water. I saw him in the twilight, a solitary and forlorn object, paddling near my quay-heading and gradually edging towards the Moor-hens' sleeping quarters. In the morning he was once more taken into the family of his adopted parents.

During July and August, 1914, I succeeded in partially taming a family of Coots within my bay. I found that they used to lie in wait for bread that was thrown to the fish, and as soon as this drifted towards the reeds, it was pounced upon by the female, who at once uttered the peculiar explosive note calling her two chicks; they then greedily devoured the bread. In time we induced them to come into the open for food, after which they regularly attended all our meals, but were always wary. The two young were more courageous than their elders; one was peculiarly aggressive, and would dart at and carry off the largest crusts, and hurriedly make for a bend in the reeds where he fondly hoped to escape notice. He was, however, always followed by one of his parents, and made to share out. On more than one occasion, he received a sound thrashing from the old birds' beaks and wings, and squealed lustily during the process, vainly endeavouring to get away from the due punishment of greed. During the third week in August the young birds began to resent parental authority, and were promptly driven out of the bay, not to return. By that time most young Coots are well able to take care of themselves, and already begin to flock and enjoy freedom with their contemporaries. Consequently, as August advances numbers of Coots begin to collect together, especially on Horsey Mere and Hickling Broad. During the winter months there are great packs of them, so dense that certain areas of the water are black with Coots. Some of them are immigrants, for the fishermen on the Norfolk Coast say that vast flocks pass over their boats. But numbers resort to Hickling from other Broads, as there is an abundance of weed for them throughout the year.

At night, even in the summer, Coots are more restless than any other birds. One cannot account for their vagaries, nor for the combined mad rushes which occur at intervals all night. Observations made during the winter of 1923-24 make me think these rushes are often due to otters. The whole pack begin suddenly to scuttle across the water with a thundering roar, and in the winter, when there may be a couple of thousand in each pack, the uproar is great. I have seen Coots in the day-time, when the pack is more or less scattered, suddenly close their ranks and bunch up in a mass if a Great Black-backed Gull hovers overhead. Then any wounded or weakly bird, if a straggler, is sure to fall a victim to such a rapacious enemy.

I like best to listen to Coots feeding on a hot August afternoon. It is pleasant to draw one's boat into the reeds in a sheltered bay and listen to the gentle plashing of a small company of Coots. Though individually the Coot makes very little noise when diving, collectively the sound is like gently trickling water. On a winter's night, the combined diving of a few thousand Coots is like the murmur of a distant waterfall. Add to this the constant calling of one Coot to another, and even the darkest night of winter on the great lonely Broad is full of pleasant sounds. Towards the end of January and throughout February the Coot's challenge-note rings out loud and clear; then the uproar is tremendous. After a spell of restless energy the Coots seem to settle down quietly, but three or four times during the night they are aroused to activity.

In Broadland one seldom sees Coots ashore, nevertheless they are quite capable of walking upon their beautiful lobed feet, and where there is a sandy foreshore they love to lie in the sunshine, more particularly during March and April.

I once saw a group enjoying themselves in this way at noon on a warm April day. Each bird was lying on one side, with one green leg tucked under its body, and the other thrust out in a most abandoned manner. I chuckled, and although some distance away, these dreamers heard me, and either because they were alarmed, or wounded in their self-respect, they immediately began to struggle into the water. Their progress was ludicrous and ungainly, especially was this the case with the last which seemed heavier and larger than the others—or perhaps he had eaten too much—but once in the water they appeared alert and dignified and looked as smart as only a well-groomed Coot can. There is always something peculiarly distinctive about black plumage, and the Coot's brilliant ruby-eye owes a great deal to its sombre setting.

VIII

THE COMMON SNIPE

CAPELLA GALLINAGO (Linn.).

IN the Broadland spring the Snipe is the first bird to awaken. Before there is a sign of light in the Eastern sky, perhaps half a dozen will begin to drum, and the tremulous sound descending from mysterious heights seems a fitting herald of the dawn. In the daytime, other and more terrestrial voices are apt to overpower it; but as night approaches, the dreamy bleating of the Snipe seems an equally fitting lullaby for the departing day. It sometimes bleats during the night, especially on bright moonlight nights.

I have only once heard numbers of Snipe bleating together. On April 15, 1901, five of us were sailing down the Muck Fleet in a small dinghy, enjoying that happy feeling of exhaustion which comes after a strenuous day well spent. Anyone who has ever helped to drag a dinghy under or round the several flat bridges spanning that scarce-navigable stream, with its accurately descriptive name, will understand how we felt. No one spoke while the boat glided downstream, impelled by what the Broadsmen calls "a bit of a draught"—it certainly was nothing more! Twilight fell, and the moon rose as we slowly drew through this narrow channel which intersects those isolated marshes. Probably the unwonted sight of a white sail alarmed the birds, for suddenly there was a whirr of wings, tiny dusky shapes turned and twisted all around us, and the air resounded with the bleating of scores of Snipe. The hitherto unbroken silence seemed filled with ghostly forms whimpering in the moonlight. It was our first experience of the solitude of the Broadland night, and as the birds one by one dropped into cover, the ensuing great wide silence of the marshes seemed more full of mystery than ever.

Judging from their numbers, these Snipe must have been passage migrants on their return journey North, as there are not a great many pairs breeding in that particular locality; besides which, nesting Snipe are not gregarious.

To lie in a canoe hidden amidst a forest of reeds and watch a Snipe drumming is one of the nicest occupations in the world; the soft murmuring sound borne down the wind suggests utter peace and contentment. If the bird is just overhead, the expansion of the outer tail-feathers can easily be seen without glasses; but it needs powerful binoculars to see them close again as the Snipe mounts upwards after the rapid descent.

This drumming is heard continuously from March to June; it is most persistent during April and May, but less obvious as autumn approaches; though I have sometimes heard a Snipe bleat as vigorously in September as if it were April. This sound is occasionally heard in winter; in fact, the only month in which I have never heard a Snipe drum is December. With regard to the bleating or drumming of the Snipe, so much has been said elsewhere by Mr. Bahr, as to the way in which this characteristic sound is produced, that it is not necessary to go into particulars here. Mr. Bahr has undoubtedly *confirmed* what had already been found by Meves—that the muffled

bleating noise is made by the two outer tail-feathers, which are expanded as the bird swiftly turns in its descent. The sudden expansion, together with certain structural modifications in the shafts and vanes of these two feathers, produce the well-known bleating of the Snipe.*

In March and early April two Snipe may often be seen circling round each other or in pursuit of one another. These are not necessarily males fighting, and they are always worth watching, as a good deal of the Snipe's courtship display takes place in the air. Sometimes one of the two Snipe will behave after the manner of an ecstatic Lapwing when it is courting. On March 3, 1913, I saw an elaborate aerial display by a Snipe, which could not have been anything but a courting episode.

A male Snipe was drumming overhead, when a second bird (which I took to be a female) flew up. The male continued drumming, but put an unusual amount of spirit into the performance. Hitherto it had been dreamy and mechanical, but on the appearance of the second bird the male became agitated, turning and twisting in rapid zigzags before the downward drop which is coexistent with the "drumming" or "bleating." In the elliptical flight which accompanies this sound, he continued to revolve round the female; the bleating was intensified, the descent more rapid, the recovery and ascent again marked with swift zigzags. The female merely fluttered round, but after some minutes she dropped down and alighted on a hillock in a bit of open swampy ground, where I could see her plainly with my binoculars. The male ceased bleating and began a series of downward dashes, uttering incessantly the curious creaking note which is peculiar to both sexes throughout the breeding season. Sometimes these swift descents were accompanied by a quivering movement of the wings as he partially hovered over the female. Now and again they were so nearly vertical that the male seemed as if he must pitch over in the air. When close enough to touch her he would shoot upwards, only to drop again. The creaking note always accompanied the downward flight, or the hovering, never the ascending movements. The female stood still calmly surveying the uninteresting foreground, with her head drawn back and her long bill pointing downwards—a model of avian decorum. After awhile she shook herself and flew a little way off. The male immediately pursued her, creaking and turning and twisting as only a Snipe can, yet always encircling her. By these manœuvres he seemed to *drive* her upwards, till finally they became mere specks in the distance.

This particular incident occurred in Sussex, or rather on the borderline between Kent and Sussex. I happened to be concealed behind a haystack on very high ground, so that during part of the performance both birds were below me; this enabled me to see the quivering wings of the male as he hovered over the female. Throughout this display, the rapid descents and creaking call played an important part; bleating was soon abandoned for these more violent tactics, which apparently proved irresistible.

The alarm note of the Snipe is a harsh "Scape, scape" uttered as it rises and while on the wing. The creaking call-note is uttered most frequently when the bird descends, and also when it stands on some hillock or perches on a post or branch. When I was moored near Hoveton Broad in May, 1904, a Snipe perched on the dead branches of an old willow tree near the yacht every evening at sunset and creaked vigorously, keeping a sharp lookout meanwhile, and occasionally preening its feathers.

During the summer of 1911 a post on my island was the favourite resting-place of a Snipe which drummed overhead most of the day. When tired of that amusement,

* Proceedings Zoological Society, 1907, p. 12.

he would descend with almost motionless wings (like a Pipit), creaking loudly, drop on to the post and continue calling, moving both mandibles of his bill as he did this.

In 1907, when I was hidden beneath a heap of reeds photographing the Reeve, a Snipe frequently settled on my shoulder, and expressed his emotions in the usual creaking manner. As he was close to my ear the effect was thrilling. For some seconds before the actual sound escaped, a wheezing noise, like the whirr of machinery, went on inside the bird; then suddenly the harsh sound was emitted, and simply shouted—all unconsciously—into my ears. Once or twice I felt the slender bill gently prodding my cheek all over, and once it was thrust into my ear. As there seemed to be a platonic friendship existing between the Snipe and the Reeve, I often enjoyed this unwonted sensation. The rubbish-heap method of photography was absolutely exhausting, but it had lively compensations. The hiding-tent has wholly done away with the old intimacy which so often existed between the photographer and stray birds.

When I first knew the Hickling area, numbers of Snipe nested on the marshes; the marked decrease of breeding Snipe during recent years is largely owing to the same causes which affect the status of the Lapwing* and Redshank. Efforts have been made to provide suitable nesting areas for Waders, and it remains to be seen whether they will meet with success or not. The increase of diurnal birds of prey however, at present, counteracts any benefit which breeding birds of all kinds are likely to derive from these efforts. Snipe like shallow pools of water interspersed with hillocks of dry ground, with sparse vegetation not more than ten to twelve inches high. This kind of ground provides ample cover for the brooding Snipe, and suitable feeding places for the fledglings.

When a brooding Snipe returns to her nest, she slips on to the eggs and settles down rapidly, then suddenly drops her head so that the long bill rests on the edge of the nest. It looks as if she found the beak heavy and welcomed some support; but perhaps the attitude is merely protective. The Snipe however has no need to pose; no matter what her position may be, there is no other bird (except the Woodcock), which so absolutely melts into its surroundings. When the bill is dropped over the side of the nest it looks like a dead rush, while the buff markings on the head and back trail off indefinitely into the tangled grass.

But for the bright eye which is always on the watch, a brooding Snipe might pass for an inanimate thing. As a rule, the faintest sound, such as the snapping of a twig, or any slight rustling, will send a suspicious Snipe flying off the nest in a second, uttering as she flies the harsh "Scape, scape"; yet one may whistle softly or talk to her quietly without causing alarm, and I have often done both in order to induce a lazy Snipe to sit up and look alive. Interest however is only momentarily aroused, and down drops the bill again. But like most other species, when the eggs are chipping the Snipe becomes too much absorbed in her maternal cares to pay attention to outside trifles.

I once spent the greater part of three days in a hiding-tent beside a Snipe, whose nestlings were on the point of hatching; and unless I came out of the tent and approached the nest, the bird took absolutely no notice of anything I did, though perfectly aware of my presence. On such occasions one really needs several cameras pointing in different directions in order to record all that takes place in avian society. There was a bit of swampy ground thirty yards away, newly mown and just in prime

* See Lapwing, p. 29.



THE PROTECTIVE MARKING OF THE SNIPE.



THE PROUD MOTHER: ONE CHICK LOOKS AT THE WORLD, AND
THREE ARE SHELTERING BENEATH HER.

condition for Waders; it seemed a kind of recreation-ground for every disengaged bird in the neighbourhood.

Here Snipe, Yellow Wagtails, Redshanks, Pipits, and Lapwings, bathed and amused themselves all day long. My brooding Snipe's mate mounted guard on a tussock of grass there, and carried on a creaking conversation with the hen at intervals. The gist of these remarks was thoroughly understood by the hen, for she turned her head in his direction every time he began to call, and occasionally replied; probably reporting progress and keeping him informed as to the condition of the eggs. Curiously enough, though so far off, the male Snipe showed considerable annoyance at my presence. I had wedged the reeds forming a screen on that side about two inches apart, and evidently he could see me. Once only during that three days did he pluck up courage to come near his mate. On that occasion they rubbed bills and mutually chortled, making queer gurgling sounds between them. The male took fright and flew away before I could photograph him, as all this went on when his tail was towards the camera, so that the bird himself filled all the foreground.

On the second day I had to leave my shelter at 5 p.m. owing to heavy rain, and I found to my great annoyance that one egg was chipped and the chick emerging. The next day it rained, as it can only rain on those marshes, until 11 a.m.; then, as the deluge subsided into a drizzle, I started off with a camera and a small percentage of hope. When I was within three feet of the nest, the old bird flew up from it, screaming loudly. I bent over the nest, but except for the broken shells there was not a sign of the young birds. However, a careful examination of the surroundings led to the discovery of three little pairs of feet turned up to the sky. The alarmed youngsters had simply taken a header over the side of the nest (which was eight inches high), and hung there motionless. It seemed hopeless to expect that either the parent or young would return to the nest; but after collecting the nestlings and gently replacing them, I kept my hand over them for a long time, then quietly removed it and crept into my tent. The little ones were contented enough, but by and by the mother returned, and standing a little way off, called them away by means of various un-oiled rasping sounds. They again tumbled headlong out of the nest and ran off. However, I waited on, and in twenty minutes' time the old bird cautiously returned to the nest accompanied by her little family, and she remained there for some hours. No attempt was made to remove the broken shells; I did that eventually.

The chicks alternately sheltered beneath their mother, and played games, as a rule on her back. One of their chief amusements was to scramble round her, chasing each other and occasionally falling headlong over the nest in these gambols.

The old Snipe sat bolt upright in a most dignified position all day, with her head drawn back so that the bill was pressed close against her neck and breast. When rushing round her, the nestlings seemed to consider it the correct thing to pass *outside* their mother's bill. One, more forward than the rest, succeeded in squeezing himself between her beak and breast. It was a great liberty to take, and required valiant efforts, for the old bird remained rigid, and the youngster had to flatten himself considerably in order to push through; at the last moment his feet hung up in her beak, which necessitated frantic efforts on his part to disentangle them. Having accomplished this, he stood on tip-toe and looked at her, but she preserved a rigid calm, so he crept beneath her and did not reappear for some time.

The rain had ceased by noon, but it was dull and cold all the rest of that day. About 2 o'clock the mother took her brood for a stroll, and again at 3.30. I saw no

food given to the nestlings during the six hours I spent with them; whether they were fed or not during these short absences from the nest I do not know. At 4 o'clock the male called with querulous sharp notes, and the whole family immediately joined him, and though I waited on for another hour I saw no more of them. The nest was wet and cold on the following day, so I inferred that they were not brought back again.

Newly hatched Snipe are the prettiest of all young birds (except, perhaps, tiny Dunlin) in their seal brown nestling down speckled with black, and tipped with red and white. That is to say, some of the down merges into red, and some into white at the tips. When three parts grown, young Snipe seem to be discarded by their parents, as I have caught them in June some distance from their breeding haunts, and apparently quite on their own, although unable to fly really well. It may take two people to capture them at this stage; but they are soon run down, and when tired, they crouch in the rough stuff and seek to efface themselves.

Young Snipe swim quite well, and take to the water when alarmed. One evening, in 1919, I was sitting reading inside my houseboat, which was then moored in a dyke, when my attention was aroused by the anxious cries of an adult Snipe. She was on the right bank of the dyke, while one of her brood was on the left bank. The young Snipe was standing on a little heap of dead rushes, preening himself in the warm June sunshine; he was about half-grown. The old bird's cries grew more and more intense, and the young Snipe at last paid attention to them. He paused in his dressing, stood on one leg, glanced enquiringly round, and looked at me, but evidently considered me quite harmless. He then replied to his parents' call with a sharp "Whit, whit," and suddenly threw himself headlong into the dyke, and swam rapidly across to his mother. I had seen the cause of all this anxiety from the very first moment when I heard the old Snipe's cries. A large rat was stealthily creeping along the bank, its greedy eyes fixed on the unconscious young Snipe as it stood preening its feathers. The rat was just gathering itself together for the final spring, and I was about to interfere, when the Snipe saw its peril and flung itself headlong into the water. The same thing occurred the next evening; but the young Snipe needed no loud warning from its parents, for it dived into the dyke directly the rat emerged from cover and began creeping towards it along the muddy under-edge of the bank. I hope the young Snipe learnt wisdom from experience, at any rate I did not see it make use of that dressing-place again.

About September the marsh-bred Snipe leave their breeding grounds for more open swampy places. Towards evening numbers resort to certain favourite feeding grounds. As October approaches their numbers are largely augmented by migrants. Some of these are only birds of passage which come in to rest and feed, and then pass on. Only extensive ringing would determine whether the home-bred Snipe remain near their breeding area all the winter or not. But, undoubtedly, a great proportion of the Snipe which frequent the marshes during the winter are migrants which stay as long as the weather conditions are good. In March and April there is again a considerable passage migration at the period when the native Snipe are already nesting.

In hard weather Snipe suffer keenly from want of food, for their feeding grounds soon succumb to frost. If the water rises much during the winter they are also inconvenienced, but they will not leave their favourite haunts until they are absolutely forced to do so by lack of food. I have handled Snipe which have been shot under these conditions, and they are miserably thin. When Snipe are driven from the

marshes, they resort to the coasts and to tidal estuaries. I have seen them feeding on the dipterous larvæ which infest the roots of decaying seaweed. A number of species simply batten for days together on these grubs, which sometimes lie in squirming masses beneath the sea wrack. These larvæ attract Snipe, Knot, Turnstones, Redshank, Grey Plover, Dunlin, and many other Waders, besides smaller insect-eating birds, such as Thrushes, Pipits, Chats, and Starlings. I have seen a small area of sand—perhaps two square yards—black with Starlings, so densely packed shoulder to shoulder, that there did not seem room for one more. When I put them up there was apparently nothing in the sand to account for this mass of birds all feeding in one spot. I began to prod in the sand with my fingers, which, however, were too clumsy to find anything, until I pulled out a bit of partially buried seaweed and shook it carefully, when scores of grubs fell out.

IX

THE REDSHANK

TRINGA TOTANUS (Linn.).

LOCAL NAME: RED-LEG.

IT is mid-February, and hitherto we have had a spell of what Richard Jefferies calls "The February summer." For a fortnight a neighbouring Thrush has fooled me by whistling like a Redshank. To-day no bird's voice is heard. Gusts of sleet and snow, or else torrents of rain, assail my tiny home. Rude blasts of icy wind seek to rip up the awning which protects the stern sheets of the houseboat. During temporary lulls I have seized hammer and nails and endeavoured to secure loose ends of canvas. There has not been a soul to speak to all day. I am rather glad that loquacious Thrush is temporarily depressed, for I want to hear a *real* Redshank and not a mere plagiarist; for the Red-leg is to the Broadland what the Chiffchaff is to the woodlands—the real harbinger of spring. However, this kind of weather will not tempt him to return, and I must possess my soul in patience for a few days yet. Jim Vincent, in passing my boat, called out yesterday: "The Redshank ought to be back soon, and then things will be more lively. I like to hear him, don't you?" But, alas, every year now it seems to me that the Redshanks return in ever-dwindling numbers. Changes which affect the status of the Lapwing* affect also that of the Redshank.

Fifteen years ago I used to go round with Alfred Nudd to gather the first clutches of eggs for the market, and we could find from fifteen to twenty nests on one small marsh. Now I doubt if twenty pairs nest in the whole area immediately surrounding Hickling Broad. The eggs were sold as "Plovers' eggs"—"But Alfred," I said, "they are quite different from Lapwings' eggs." "They're all the same to them Londoners; *they* don't know what they eat."

Nevertheless, even the few pairs of Redshanks which still breed here can make life a joy. Their clear flute-like call is one of the chief charms of the marshes. It may be heard throughout the day, and all night; when the moon is up Redshanks are never quiet. The purple night is vibrant with sound. Sometimes the birds whistle in unison, and how many voices are thus blended it is impossible to say. Throughout March Redshanks are especially noisy, for the local breeding birds are augmented by passing migrants. They call to each other in varying keys, and the challenge is taken up by one bird after another over the whole surrounding area of marsh and mere. Probably, however, what strikes the listener as a variation in key is due merely to distance and atmosphere. By the beginning of April many have passed on, and the home-breeding Redshanks begin to settle down in their various territories. If the wind is boisterous and keen as it often is during April, even the Redshanks are subdued. I have known a whole fortnight of bitter weather in April, during which they have been practically silent, crouching behind bushes and heaps of litter, or cowering in the coarse herbage. Given the least excuse, such as an hour or two of warmth

* See Lapwing, p. 29.

r a temporary lull in the wind; and the Redshank recovers his spirits and continues to woo his mate; which all-absorbing pursuit he may have temporarily abandoned. I have never seen any desperate fights between Redshanks, not even during the first days of their arrival, when there is territory to acquire and there are wives to be wooed. Courtship is carried on openly, and often several pairs will resort to one spot and make each other's acquaintance. I know two charming open spaces where the grass is as fine as darning needles, and the turf as level as a lawn. Here six or eight pairs of Redshanks will meet and make love simultaneously. Now and again one bird makes a dead-set at another, but it is not "war to the knife." They are eminently social in their habits; they breed in colonies, and unite to drive away a common marauding enemy. The Redshank's courtship is one of the daintiest performances imaginable, and continues long after the hen has settled down to the more prosaic business of life. When approaching the female, the male seems to tread on air as a swimmer treads water. With uplifted slender pointed wings, he runs towards her, his feet barely touching the earth. Sometimes indeed they do not touch, he is borne along by his wings, treading on air. Then dancing before the hen or round her, he rapidly vibrates his wings, and gives vent to the long-drawn rippling spring cry which is best described as "yodelling." It cannot be reduced to words, for no syllables can express its beauty, and no musical instrument can reproduce its inflections. The uplifted quivering wings, gleaming white in the sunlight, and the rapid movements of the brilliant red legs, together with the soft mellow love-song, make the Redshank's wooing almost unsurpassed for beauty and grace. I have often seen the female crouching close to the male while he is thus singing and displaying; but as a rule the female amongst most species pays very little attention to the male's rhapsody. I once saw *both* Redshanks dancing together, but this was quite early in March, when "all the world was young." One day I saw a male accompany his mate up and down a reach of the River Tay. She was brooding, and came regularly to feed at the same place daily. The male waited for her at noon, and as soon as she flew from the uplands he danced and yodelled beside her while she fed. But she never took the slightest interest in his performances, her sole object was to get as much food as possible in a given time. Frivolity to her was a thing of the past, for this was during the first weeks of May. The male Redshank's song and dance, like the Lapwing's aerial display, seem to be indulged in very largely as a safety-valve. Both species possess a tremendous amount of superabundant vitality; both indulge in these displays for some time after the females have begun to brood. I am sure that very many species just love being alive, and it is this intense love of life which appeals to me.

In some cases Redshanks pair before leaving their winter quarters. This was the case in Holy Island during February and March, 1915. The home-breeding birds repaired to their breeding grounds early in March. These birds formed a very small proportion of the flocks which remained; yet many of the shore birds were in pairs, and a great deal of courting went on throughout March. The flocks were disintegrated, but the Redshanks were more or less gregarious, and in the evenings flew off to roost in the higher meadows, apart from the breeding areas of the native Redshanks. By the end of March only the home birds remained.

Nearly all the nests I find on the Broadland marshes are placed amongst tall rank herbage and very well concealed; the points of the surrounding rushes are often laced together above the nest. If the hen has been sitting for some time, she will let you walk up and lift her from the nest; if, however, incubation is not very far advanced,

she is easily disturbed. But at all times the male makes a great fuss if you are anywhere near his mate, hanging in mid-air with drooping wings and uttering a sharp cry. He likes to stand on a post or on a heap of cut litter, from which point of vantage he can survey the landscape or challenge his fellow Redshanks. The man with a gun always curses the Redshank. I have often heard quite birdy people say, "I hate the thing; it always gives the show away!" As I don't ever carry a gun, I can afford to like the alert and pugnacious Redshank very much. It fills me with pleasure to see his orange-red legs gleaming in the sunshine, and to watch his fantastic method of curtseying to all questionable intruders. On Scolt Head, they nest in the sandhills amongst the marram grass; and on the saltings when the nest is placed in a low suæda bush and quite open.

Young Redshanks leave the nest very soon after they are hatched. I have seldom been able to find them twenty-four hours after they are out of the eggs, and hunting for them is like looking for the proverbial needle. They crouch in the tangle, and sham being dead; but when once on their feet they scuttle over a bit of open marsh at a tremendous pace, and swim the intervening pools with great skill and energy. Unless you have on long boots, these little refugees will soon land you in uncomfortable places. It is annoying to be made a fool of by a tiny ball of fur perched upon two legs the height of matches. In addition, you have to face being "mobbed," as the Broadsmen says, by a crowd of angry parents; the clamour they make is great. Probably the intruder would not find himself flattered if he possessed Canace's ring that,

"Told her everything
Which birds might say, or might be said to birds."

The young Redshanks pick up small worms, insects, and the tiny mollusca which infest the sodden marsh plants. At first they are fed by their parents, but they very soon learn to pick up insects for themselves. When the young are about half-grown, the parents often change their feeding grounds; or, if they are isolated families, they seem desirous of joining their congeners. In order to do this sometimes wide tracts of open water have to be crossed. To me, one of the most interesting episodes in the life-history of the Redshank is the way in which they move their half-grown young from one locality to another. I have watched this twice, and on both occasions it occurred after a certain marsh had been continuously raided by Harriers. Each time my island served as a half-way halting-place for the young voyagers. The most interesting occasion was on June 17, 1922.

At 8.30 p.m. (solar time) a Redshank approached the island, flying so low that the bird and its reflection in the still water almost met. The Redshank was uttering its shrill double call-note in a peculiarly agitated manner, and on scanning the water closely I saw, almost fifty yards behind it, two tiny upright birds swimming together. They were two young Redshanks about two weeks old, probably the same birds I had recently photographed. The old bird flew to a shooting butt further on; so, unperceived, I slipped into the houseboat in order to get a good view of the young, as I judged they would land on a point under my window. They approached in the peculiarly buoyant manner of young Redshanks when swimming, for in attitude and buoyancy they are very much like Phalaropes. There had been a heavy gale of wind earlier in the day, and several inches of spume had banked up against the point. When the two little Redshanks landed they were covered with foam, as with a thick coating of snow. They stood shivering and uncertain what to do next, and how to rid them-

selves of the foam. Meanwhile, the old bird had alighted on the roof, and I could hear it pattering to and fro overhead, all the while uttering sharp cries. After a few minutes the young ones shook themselves free of the foam, and ran along the western edge of the island, keeping to thick cover. I then went on deck; as soon as the old Redshank saw me it became wildly excited and flew round me screaming, and then perched on my punt twenty yards off, keeping one eye on me and shouting directions to the young. The latter uttered faint cheeps as they ran in and out of the reeds, so that I could trace their progress by these sounds. By-and-by the old Redshank flew over the reeds and lured them still further away from me; then it dropped down on to a muddy oasis, and there was silence for ten minutes. After that, the parent bird flew across to the marsh, which was their final goal, and from thence called continuously to the young. Faint cheeps continued to come from the reeds, and the forlorn young refused to move for another quarter of an hour. So strenuous were the Redshank's cries that it roused all the other Redshanks which hitherto had been silent for some three-quarters of an hour. Gradually the feeble piping of the young ones moved round the reeds encircling the bay, until they reached the exact spot from which the final crossing could be undertaken with least fatigue. Loud and shrill rose the guiding voice of the old bird; fainter and fainter the feeble notes of the young ones as they pursued their voyage. Black clouds with livid purple edges hung over them, and were mirrored in the water beneath. It must have seemed a perilous voyage to these fortnight old chicks unused to swimming. By 9.15 the agitated cries gave place to soft contented crooning, and then there was silence. Ten minutes later rain fell, and the wind rose and lashed the water into short choppy waves; the voyage had been successfully timed. But why should this journey of three hundred and fifty yards have been undertaken so late in the day? When they started there was only just enough light to enable the young to steer from point to point. Perhaps it was because the diurnal birds of prey are not on the warpath after dark; but in any case the screams and the cries of the old Redshank as she convoyed these babes from the air were loud enough to attract any lurking enemy.

The other occasion when I watched a similar removal of young Redshanks was at noon on a hot July day in 1919. Then both adult Redshanks were employed in convoying the young. My attention was drawn to the old birds by the clamour they made, and I saw two young ones trying to land on the island; but the bank was too steep for them, as it had recently been raised and strengthened. The old birds swooped down low over my head and tried to drive me away, while I was getting a photograph of the young ones. Eventually, being unable to land, the little Redshanks swam into the fringe of reeds, and made their way round the island, until induced by their guides to venture once more across the open water. In both instances the young were directed to the same ultimate landing-place.

As soon as they can fly, both young and old assemble in flocks and roam over the marshes; but by the end of July most of them leave the Broadland. By the end of August there is scarcely a Redshank left. Their departure leaves a great void; for what the song of the Blackbird is to the woodlands, the Redshank's yodelling is to the marshes, where wave after wave of clear ringing crescendo and diminuendo seems so in keeping with big open spaces.

In the autumn the Redshank is to be found in numbers round the coasts, where they resort to tidal estuaries and feed on the mud flats; but my experience of them, between July and October, is limited to occasional glimpses of large flocks when I

have been bird watching on the Norfolk coast. But in Holy Island, in the winter of 1914-15, I watched Redshanks very carefully.

On the seashore they pick up small crustacea, annelids, and various marine organisms, which get left behind in the rock pools. They devour large numbers of sand-hoppers and the larvæ of flies which breed in the decaying seaweed above high-water mark. In one bay, on the east side of Holy Island, there was a heap of sea wrack, which was simply a horrible squirming mass of larvæ, much resorted to by all the shore birds.

Given a choice between low-lying rocks and a stretch of sand, Redshanks seem to find more congenial food amongst the rocks. They frequently mix with the Turnstones, whose company they prefer to that of other Waders. Every day throughout the winter of 1914 I put up little companies of Redshanks and Turnstones from the mussel scalps on Holy Island. Whether or not they feed on mussels I cannot say. I seldom found more than two or three Redshanks with the swarms of Knot and Dunlin which were swept up before the tide in the sandy bays. A photograph of a Redshank trapped by a cockle-shell appeared in *British Birds*, vol. vi., p. 225. The cockle had closed on the bird's upper mandible, and thus caused death. It would appear from this fact that Redshanks do try to extract shell fish.

Even in its winter quarters the Redshank prefers land and fresh water food to a marine diet, when the former is available. During January the meadows beneath my window in Holy Island were mostly under water, and for a fortnight the Redshank forsook the adjacent rocks for this temporary swamp. They paddled about in the shallows all day, and roosted on some higher ground beneath a sheltering wall. During November and December, before the mere filled up, I used to put up flocks of from seventy to a hundred Redshanks feeding round its outskirts. They also followed the plough in company with the Gulls and Starlings. They stood in awe of the Gulls and became subservient in their manner; an attitude of mind somewhat foreign to the noisy Redshank's nature. They were not easy to see in the furrows, for their plumage when running about looks more or less dingy. It is on the wing and in big flocks that the Redshank shows to advantage. Then the dark brown earth is suddenly transformed; there is a rush and a gleam of white-edged wings as they rise and wheel in the pale wintry sunshine. Their loud rioting gives a feeling of intense life to a dreary November day. Enveloped in thick mist, you may approach close to a flock feeding on the shore before the birds are aware of your presence. The next moment they have vanished in the fog, and their startled angry cries are lost in the dull thud of invisible waves. The whole battalion may wheel, and drop again almost in the same spot. In all probability, however, it will put a mile of shore between itself and what it considers to be the cause of all the commotion. This really is the Redshank and not the vagabond bird-watcher who meant no harm.

The Redshank is usually a very shy and wary bird at all seasons of the year. Yet in some of the little villages in the Orkney Isles I have seen them pattering down the main road, picking up garbage in the none too salubrious streets. They seemed as unconcerned as sparrows. Their twinkling red legs, long bills, and self-contained air seemed singularly out of place in a public thoroughfare. One does not expect to find this shy bird tumbling about in gutters amongst the bare-legged youth of the human species. And this too in May, when the Redshank is more inclined to avoid the presence of man than at any other season of the year.



A REDSHANK SHOWING ITS WHITE RUMP IN FLIGHT, AND A MOORHEN IN SEARCH OF FOOD.



A REDSHANK WADING FOR ITS EVENING MEAL.

X

THE SEDGE WARBLER

ACROCEPHALUS SCHOENOBÆNUS (Linn.).

IT is April 19, 1923, and as cold an April as I have ever known. I know there is one Sedge Warbler who has been brave enough to return in spite of the bitter East wind, for he was feebly piping in a bush two days ago. On the same date, April 17, 1913, one was in full song by my houseboat, but Sedge Warblers do not as a rule arrive here in bulk until some time between April 22 and 28.

Since March 30 the wind has effectually silenced most of the birds which have returned to their nesting areas. Yet on the night of March 24, and from the 27th to the 29th, the great area of Hickling Broad was one riot of sound all night; so loud was the chorus of Redshanks, Lapwings, Snipe, and Bitterns, that its echoes awoke dwellers on the mainland. When ashore on one of these mornings, a friend called out to me: "How can you sleep over there amidst all that noise?" To which I replied: "I can't, and I don't want to." But ever since the nights have been filled with silence. Even after sunset, when the wind generally sinks for a time and most Waders and the Bitterns tune up, there has been no music, no sound at night but the dull ticking of my clock. It is so palpable at times, this great wide silence of the marshes, that it produces a tingling in my veins. I wait and wait and listen, for what? The marshes have their complement of Waders, and deep in the heart of the reed-beds Bitterns are furtively working out a fresh cycle of their lives. But the great stretches of golden reeds are empty of Warblers. Sheets of dead gold under a sapphire sky, and rising out of the sapphire water—beautiful, but dead and hard, and cold, until teeming with Sedge and Reed Warblers. Only a few more silent nights and rough windy days before the whole area will be alive with the cheerful aggressive chatter of the Sedge Warblers, whose lively personality will rouse the half-awakened Broadland, and make life in general worth living. Only a few more days, and instead of flushing here and there a little solitary skulking coward sheltering himself from the keen winds, I shall wake up to find the marshes ringing from end to end with their garrulous outpourings of song. One Sedge Warbler after another will slip up a reed or a branch of sallow, and burst into a torrent of invective at being interrupted in his fighting or love-making, or whatever business happens to be on hand. Not that he is usually irascible; but if you shy a stone into a bush in order to see if a Sedge Warbler is at home, naturally he becomes abusive; a second stone is generally received with contemptuous silence. Even I, the least destructive of naturalists, am guilty of the crime of shying stones at times. It is so tempting, and so easy to get a rise out of a Sedge Warbler.

As far as my experience goes, Sedge Warblers are less faithful to their old breeding territory than are Reed Warblers. Unlike the latter species, Sedge Warblers are widely distributed over a large area; they are not restricted to the reed-beds. Any suitable spot pleases the Sedge Warbler, provided it has not already been claimed. I have known individual Reed Warbler sites occupied year after year; and if the reed-beds

have not been cut, almost the same clump will be resorted to each season. But in the case of the Sedge Warbler you may hunt over what you consider to be the territory of one pair, and seldom find the nest twice in the same spot.

The males arrive some days before the females, and at once take possession of a territory, and proceed to defend it against all comers. Personally, although I have seen a good deal of spirited scrapping amongst the male Sedge Warblers, I have never seen any really desperate fights over territory. The most serious combats which take place round me are always *after* birds of any species have paired, and generally when the female is brooding. Sometimes in mid-May, unattached birds in search of adventure trespass on the breeding area of another bird of the same species, and then there is trouble! Sometimes both the male and the female of a pair of nesting Sedge or Reed Warblers will unite to drive away the adventurer. I have known this kind of warfare to persist for several days. One inoffensive and respectable couple will be persistently annoyed by some irresponsible rover; but in the end the marauder seems to be driven away and the irate couple settle down peacefully once more. From the time of their arrival in April until the young are hatched, Sedge Warblers sing and chatter all day long and often half the night, provided the wind is not keen or rough. No doubt the vigorous singing at the end of April is partly due to rivalry on the part of the males, the song being a part of the courtship display. Sometimes on perfectly still April days the male hurls himself into the air after the manner of a Whitethroat, chatting gaily all the time; but he cannot imitate the Whitethroat's rhythmic rising and falling.

Not content with his own hereditary song, the Sedge Warbler mimics nearly all the marsh birds. He is a born plagiarist; and so artfully does he weave into his patter notes, or even whole phrases from other birds' songs, that it is difficult sometimes to disentangle them. The modern theory that sexual instinct alone is the basis of all action and emotion on the part of a bird seems to me overdone. I am quite sure that half its time at least, a bird sings from pure joy. Given a glorious spring day and everything that makes life worth living to a bird, what should it do but sing!

When the female arrives the emotional male shows considerable excitement, and rushes about with a bit of dead grass or reed in his bill; or, climbing a little way up a sallow bush, sings his loudest; then he suddenly becomes humble, and stands before her uttering a faint cry, quivering his drooping wings and erecting his head feathers. One would like to know more about this mystery of a wild bird's wooing. Although in the spring migration males precede the females, yet undoubtedly a number of birds of both sexes arrive at their breeding grounds simultaneously. As a result of my photographic experiences, I have no hesitation in saying that in all things concerning the home, most hen birds are quite as intelligent as the cocks, if not more so, for the nest means more to the hen. If the cock is able to find his way unerringly to certain definite localities, surely the hen can do the same; and provided both have survived the perils of a double migration journey, the same pairs may occupy the old breeding area together. The male has merely preceded the female in some cases, in order to secure their mutual rights. That the wooing is renewed each spring only shows that the male bird has a keener insight into the intricacies of the feminine mind than many of his superiors.

Amongst our resident birds, even amongst those species which are gregarious in the winter, there are often certain pairs of Finches and Tits which keep together, feed together, and eventually nest in our gardens. It is of course, impossible to say

which individuals pair for life, but I feel sure that some do. While watching a flock of Snow Buntings at the north end of Holy Island I saw a Merlin single out and stoop at a cock bird. The fight for life on the part of the Snow Bunting was wonderful, but hopeless. Gradually the Merlin forced his victim out to sea and eventually exhausted and captured it. But the absorbingly interesting thing about this episode was the frantic behaviour of a hen Snow Bunting. She left the flock immediately the cock was attacked and flew up and down the sand-hills, uttering wild cries of distress. She continued to do this long after the tragic fate of the male was sealed. I lost sight of her after an hour, but later on, when returning by the eastern shore, I again saw her hunting to and fro all along the shore, and heard her continuous wailing. For two days the eastern and northern shores were haunted by a restless wailing hen Snow Bunting. Presumably these two birds were a pair; and if one pair of any species exists in a mixed flock, why should not a number of adult birds remain in pairs all the winter? So far no light has been thrown upon this problem. But the one great fact that twenty years of bird photography has taught me is this—that individual birds differ temperamentally quite as much as do dogs or horses or men, or any other wild beasts. I cannot emphasize this fact too strongly, or insist upon it too often. It is here that scientists and armchair naturalists so often err in their deductions; they do not allow for individuality. From observations made in Holy Island during the winter of 1914-15, there is no doubt whatever that a certain number of individual birds of many northern breeding species, such as Hooded Crows, Jack Snipe, Fieldfares, and Redwings, pair off in February and March before they leave our shores. It is possible that this is the case too, with some of our summer residents, and that would account for the fact that I occasionally see pairs of both Sedge and Reed Warblers established in their breeding areas quietly, and with no preliminary fighting or undue fuss of any sort.

It is, of course, much more difficult to gain an intimate knowledge of birds in a tangled area of marshlands and reed-beds, than it is in open country and seashore such as Holy Island. But Sedge Warblers are not very shy, and they are by no means unfriendly. I have a great liking for them, and the fact that they—together with a pair or two of Reed Warblers—always bring their newly fledged broods to finish their education on my island proves that the liking is returned. But this is anticipating.

Sedge Warblers waste no time when once they have settled preliminaries. The hen soon starts building her nest, while the cock fusses round, looking as if he would like to lend a hand if allowed. As far as I can see, he is seldom allowed to do much but encourage his mate with cheerful conversation and fussy attention. Incubation is performed chiefly by the hen, but the cock relieves her sometimes.

The first Sedge Warbler's nest I ever photographed was five feet up in a hedge bordering the high road. Tall reeds and sedges were intermingled with brambles and thorn in this hedgerow; the nest was built amongst the reeds, but rested on a thick tangle of undergrowth. It is the only Sedge Warbler's nest I have seen so far from the ground; most of those I come across are in coarse vegetation on the open marsh, or else very low down in the fork of a bush. It is very delightful to sit quietly by a brooding Sedge Warbler; the hen is singularly confiding. She nestles down comfortably until almost lost to sight, but rears herself up at intervals in order to observe passing events. Sometimes she turns her head sideways and eyes you with a black beady eye. No bird ever seems to focus you with both eyes at once. It is this little twist of the head which gives birds an impudent air; they really cannot

help it, and mean no offence. In the case of the Sedge Warbler, the broad buff eye-stripe lends it an additional quizzical mien. After satisfying herself that you are quite harmless, the brooding bird gives herself a little shake and ignores your presence. The awakening lives beneath her warm breast absorb her interests and demand all her tender care and solicitude.

As soon as the young are hatched, both parents share equally in the task of feeding them; the garrulous cock has then no time to discuss the affairs of the marshes with his neighbours, and a sudden silence seems to pervade Broadland. Flies form the chief food supplied to the nestlings, and as the rank aquatic vegetation is infested with insect-life Sedge Warblers can rear a family without much trouble. Sometimes they hawk for flies and moths on the wing; but for the most part they slip in and out of the tall grasses silently and unobtrusively, picking off insects (including aphides) here and there, and when they have a beakful they return quietly to the nest. Of course, if you insist upon invading the privacy of the Sedge Warbler's home you cannot expect so loquacious a bird to pass you in silence. He will pause in the act of carrying food to the young, and in spite of a beakful of insects manages to say what he thinks about your unwarrantable intrusion, thrusting his head forward in a truculent manner, and slightly tilting it on one side so that the broad eye-stripe seems to emphasize his disdain. On the whole however, his attitude is friendly, and his skulking ways are more the result of custom than fear; they are due largely to his method of hunting after food amongst rank vegetation in solitary places.

When old enough to quit the sheltering tangle of undergrowth, the youngsters may often be seen sitting in the branches of a sallow bush, awaiting their turn to be fed. The fledglings which are brought to the island sit in the willows and chatter incessantly. Each one as its turn comes round to be fed, stands up, flutters its wings, and bending slightly forwards, opens wide its gape in order to receive whatever dainties are provided. There is always a fine supply of insects about my boat in summer, and I am grateful to any birds which will reduce their numbers. Also, I am not enchanted when cold green caterpillars dangling on threads, drop on my neck while I am vigorously swabbing a boat. The young Warblers are more than welcome to these cool—and doubtless juicy—morsels. Whether the young birds roost in the willows I do not know; but the parents wake me early in the morning with the incessant patter of their little feet on my roof, and merry cries come from the branches overhead. These young birds continue to partake of my hospitality for a week or ten days, and then they vanish. There must be multitudes of young Sedge Warblers amongst the reed-beds and on the marshes, but they are seldom in evidence after the second or third week in July. The marshland is the poorer for their departure. They are missed, as only the cheerful are missed in this world; for although the Sedge Warbler's song often consists merely of a succession of harsh notes, what he lacks in art is amply atoned for by a certain quality, which is the very essence of joy; and this he gives freely to all the world. He chatters all day long, and sometimes his hilarity extends far into the night. If this species suddenly became extinct, and the tiny, low comedian of the marshes vanished for ever, his loss would create a blank and a great wide silence which nothing could fill.



A REED WARBLER RETURNS TO ITS NEST.



THE FEMALE GRASSHOPPER WARBLER CREEPS MOUSELIKE
THROUGH THE TANGLE.



THE MALE SPREADS HIS TAIL IN ANGER, INDIFFERENT TO THE
CLAMOUR OF HIS BROOD.

XI

THE REED WARBLER

ACROCEPHALUS SCIRPACEUS (Hermann).

I HAVE seldom seen the Reed Warbler on Hickling before the first week in May. But in 1908 I saw and photographed a nest containing four partially incubated eggs on May 6. The owners of this nursery must have been an adventurous couple to brave the cold of a district that is exposed to all the bitter blasts that blow in April and early May. The normal self-respecting Reed Warbler usually delays building operations until there is some promise of cover other than the stiff stark remains of last season's growth.

If the reed-beds have not been cut during the winter, the Reed Warbler will return to the same spot, and sometimes to the same bunch of reeds, for several years in succession. In August, 1914, owing to a misunderstanding, the greater part of a clump of reeds which for years had been the habitat of one pair of Reed Warblers in my bay was cut away, so that only a thin fringe remained. Nevertheless, in 1915, the birds nested in the narrow margin which had been left to them. Although there was thick cover twenty yards away, yet they preferred the old depleted area. Had the whole of this reed-bed been mown, they would perforce have gone elsewhere, but as long as a part of it was left standing they evidently clung to their old territory. I do not know if the hen bird of this pair was the one which returned the previous year; but I am sure that it was the same cock, because of a certain quality in his singing which I shall describe further on.

The territories which I know well are, generally speaking, occupied by male Reed Warblers some ten days before the females arrive. Sometimes fierce fights are waged between rival claimants for territory. As a rule these battles are not as serious as they look. They consist chiefly in one bird making a dead-set at another, when both hang in the air, buffeting each other with beak and claws, maintaining their balance by means of short rapid strokes of the wings. The owner of a bit of territory will often cling sideways to a stiff reed and keep a sharp lookout for the enemy. While doing this, the Reed Warbler seems to hunch up his shoulders, and twist and stretch out his neck, and move his head in a curious writhing manner. This aggressive attitude almost invites attack.

During the interval, before the arrival of hens, the cocks sing loudly. They are not all in good voice when they first arrive; a certain amount of practice is essential before the Reed Warbler's song is brought to perfection. So one bird vies with another in song, and they really lead very strenuous and exciting lives before the females arrive and rouse their emotions to the highest pitch. Then for a few days it seems to me that the reed-beds are quiet. The inner life, and especially the courtship of the Reed Warbler, is difficult to watch, because it takes place in inaccessible surroundings. These birds are not shy while tending their young; but they are exceedingly coy over preliminaries, and quickly efface themselves if a canoe or punt intrudes into their privacy while courting is going on. Besides which, their behaviour is

never of an obtrusively violent nature, and only good luck enables the observer to catch more than a glimpse of these small Warblers which live out their little lives amidst dense reed-beds. A slight bending of a golden reed-stalk (for the young green "colts," as the Broadsmen call the new reeds, have not yet hidden last year's growth), a momentary glimpse of a lithe brown body slipping up and down the reed, and that may be all you can see of the bird, unless you are content to watch and wait a long time. But sometimes the Reed Warbler is so intent on his wooing that he pays very little regard to outside affairs. As soon as he catches sight of the hen, he balances himself daintily on a swaying reed, fluffs out his head and throat feathers and very slightly shivers his wings. If the female flies away, or is more inattentive than propriety demands, he bursts into little snatches of song; or picking up a bit of dead reed, he follows her as if to assure her that his intentions really point to house-keeping. As a rule no properly conducted female bird ever appears to be in the least impressed by the male's wooing, however fantastic or violent this may be. There are two pairs of Reed Warblers which annually inhabit my bay, and they are always of great interest to me because the behaviour of the pairs is so different. I believe, as regards one pair, that the same male bird returned five years in succession (1911-15). He was an extraordinarily gifted singer and an expert mimic, and often brought me outside my boat in the expectation of seeing Bearded Tits and other birds. He *seemed* to sing all day and most of the night, from May to the end of July; but of course he took some time off for sleep, though *when* it would be difficult to define exactly. He made no attempt to feed the young while they were in the nest. I have watched his hard-worked mate do all that, while he poured out his soul in melody, for he evidently possessed the artistic temperament. I always hoped that his wife was satisfied with her gifted husband. One cannot have everything in this life. As for the other pair, they lived quite ordinary lives, and the male's behaviour was exemplary. About the end of June he ceased to sing and helped tend the young. Whether he shared in the incubating I do not know; I have seen some male Reed Warblers change places with the female on the nest. The variation in song and behaviour of these two pairs of Reed Warblers is only another instance of the great difference which exists between individual birds of the same species.

I am never bored with looking at Reed Warblers' nests. They are so highly specialized, so wind resisting, yet withal so frail, that they are an ever fresh wonder to me. Sometimes they are placed in hedges, and attached to hawthorn stems and flowering plants. Normally, they are suspended between four or five reeds, about three parts down the stalks, in a dense reed-bed. The supports are so carefully interwoven that the reeds look as if they had simply been thrust through the nest. There it hangs like a carefully slung cradle—swaying as the reeds sway. On wind-swept Hickling I have seen some parts of the reed-beds which I knew contained Reed Warblers' nests, so tortured and bent before the blasts, that they have not recovered their stateliness for several days. Yet the eggs have been safe, and the brooding bird apparently in nowise disconcerted. The nest is deep for so small a bird; it bulges slightly at the sides, and the rim turns inwards as if it had been slightly drawn up with a bit of elastic; and it is so deep that when brooding, the Reed Warbler almost vanishes from view.

On one occasion, when I was photographing a Reed Warbler during a very high wind, which made it difficult to manipulate my camera, and so buffeted the reeds that they in their swaying bent the nest out of its natural shape, the male bird came

and brooded over the young. He was singing his loudest as he slipped through the reeds and continued to sing for some time afterwards, as if he thought that the whistling of the wind formed a fitting accompaniment to his own wild song. He did this at intervals while brooding. Perhaps it was a protest; for I often find that male birds sing when alarmed or annoyed, and especially if suddenly disturbed at the nest. One of the most nervous birds I ever tried to photograph (a male Whinchat) would *not* go near the nest, and yet perched on a long rubber tubing I was using, and sang loudly at intervals during two days. Male Whitethroats also sing when annoyed, and so do several other species I could instance.

The attitudes assumed by Reed Warblers when feeding their young are both quaint and graceful, as they are expert gymnasts and have perfect control over their lithe bodies. Grasping a swaying reed with both feet, they bend over the nest and stand upside down while thrusting some dainty morsels into an upturned gaping bill.

There is abundance of food amongst the reed-beds—delicate winged flies (*Diptera*) of various kinds, also the beautiful demoiselle dragon-flies (*Odonata*). These insects seem to be reckoned a delicacy by many marsh birds. Curiously enough, it is generally the brilliant blue male which falls a victim (evidently he pays dearly for his gay attire), while the inconspicuous female more frequently escapes capture. I always feel sorry when I see Swallows, Corn Buntings, and Warblers, ruthlessly doubling up these sapphire and turquoise jewels and thrusting them into hungry gapes; especially when there are such myriads of insect pests we could so easily dispense with in the fens. But it is no use grumbling at nature's inconsistencies.

All young Warblers are more precocious than the young of any other species, and if alarmed they will flutter out of the nest when only seven days old; Reed Warblers are no exception to this rule. Nearly every nest, no matter of what species, will contain one or two young which are more vigorous than the rest; so when I am photographing birds feeding well-advanced nestlings, I usually pocket the most adventurous* if they show any tendency to scuttle out of the nursery. They are then quite safe, and being always the best-nourished can wait a little while for their next meal if they are kept warm. Besides which they do not tempt the weaker ones to stray, and in so doing wreck the home—and my photograph.

Young Reed Warblers when they leave the nest prematurely cling rather helplessly to the reeds and look very "leggy," for their legs and feet seem stronger than those of other nestling Warblers; but if they wander away they get lost and are unable to return. Under normal conditions however, when they are about ten or fourteen days old, they take short excursions to and from the nest and can even fly a little. At this critical period they sometimes fall victims to a hungry pike; there will be a rapid stirring of the reeds followed by a gurgling sound, while the old Reed Warblers betray considerable anxiety and fly distractedly to and fro, uttering anxious cries and feigning injury.

Late broods remain with their parents until it is time for them to migrate. During the whole of August and sometimes late into September you may come across little family parties. They skulk amongst the reeds and are difficult to flush, and apparently keep to their own breeding areas for two or three weeks after leaving the nest. The Reed Warbler is decidedly more local in its habitat than the Sedge Warbler. On some Broads it is not at all common, whereas in other localities every patch of reeds harbours at least one pair, though one could seldom know of their proximity if it

* See chapter on Grasshopper Warbler.

were not for the fact that the males sing continuously. Often the singer is invisible, and one may sit for hours near a bird that is pouring forth his very soul and making the twilight throb with music, and yet not get a single glimpse of the singer. This, of course, is not always the case, as frequently the male may be seen clinging sideways to a reed near his home and singing his hardest. What strikes one most when watching any bird which gives of its best in song, is the tremendous physical effort entailed. The Reed Warbler, at any rate, sings with his whole body; whereas the Blackbird does not. In the case of the Reed Warbler every muscle except those controlling the vocal organs, seems tense; the very reed to which he clings vibrates, and one sometimes half expects that the rapidly pulsating throat will collapse under the long continued strain.

This bird has been called "the Nightingale of the Broads," but though his singing is inferior to the Nightingale's, yet he is an excellent substitute. Moreover, his song is cheerful; one does not wish to brood over the Eternal Passion and Eternal Pain of the Universe when listening to the Reed Warbler; his song is vivacious and tends to brace one's nerves. I well remember in the earlier days of my work, when it was considered necessary to endure tortures in order to secure successful photographs of birds, I could not possibly have borne some of the discomforts had it not been for the Reed Warbler's song. Once one sat on my head (which was covered with some sedges) and sang to me as long as I could remain motionless. But his usual perch was about two feet away, and by working a stick through the rubbish underneath which I was hidden, I made a peep hole daily, through which I could watch him when I was not otherwise engaged. Until 1922 there was only one spot in the Broadland where I could be lulled to sleep by a Nightingale and a Reed Warbler together, and then it seemed as if all the melody in the world were concentrated in that one perfect spot. I was alone for three weeks in an old houseboat, which had been lent me, far away from all human intrusion, and without even my dog. Sometimes there were violent thunderstorms, which I loathe in the night; but most of those June nights were perfect. Food was brought me by the keeper's wife, and I cooked enough in the evening to last me the next day. After my evening meal, I used to sit outside until all the birds were hushed, and even the wind had ceased whispering in the reeds. Then, indistinctly at first but increasing in intensity, the first faint long-drawn sob of a Nightingale would float over the water; and immediately, as if answering to a challenge, a Reed Warbler, whose home was close by my windows would break into a torrent of song. And so night after night these two birds vied with each other and gave of their best to the listening earth.

The numbers of Reed Warblers on the marshes fluctuate from year to year. In 1919 they were numerous, but in the years preceding 1914, and again from 1920-23, they were not up to their full strength. But 1923 saw an increase of one pair in my bay, and these nestlings were fledged yesterday, August 9. As far back as I can remember, I have only had two pairs breeding here. There must also have been a considerable increase in their numbers in my vicinity, for I have never heard such an outburst of song as that which heralded the dawn on July 11. As no other birds were singing this concert of Reed Warblers was all the more marked, but it certainly was far greater than any I have heard during recent years. There is something curiously attractive in such an outburst of song from numbers of birds of one species only, all singing their morning hymn to the sun in unison. In this instance, it would seem as if the Reed Warblers were making a final big effort before the song-period ended,

as they have been practically silent since July 15. Later on they will sing again; but it will be a feebler strain, a farewell effort before they depart and leave the reed-beds empty and shrinking beneath the chill hand of October.

Although the Reed Warbler arrives later in the spring than the Sedge Warbler, it stays with us longer in the autumn. The bulk of our native Sedge Warblers depart south during the first fortnight in August, while Reed Warblers may be found up to the first week in October. There is still an enormous field for research open to ornithologists with regard to the minute details of food required by species otherwise intimately related in their habits. Warblers which eke out their diet with autumn berries seem able to delay their journey South considerably longer than those which depend entirely on insect food. The Reed Warbler undoubtedly feeds upon berries in the autumn, but I have not yet been able to ascertain whether this is the case with the Sedge Warbler.

XII

THE GRASSHOPPER WARBLER

LOCUSTELLA NEVIA (Bodd.).

LOCAL NAME: REELER.

IT is a mystery to me how anybody ever finds a Grasshopper Warbler's nest on these marshes, where one acre of rank herbage looks exactly like another! It is easy enough to see the bird if you are patient, because his curious sibilant song is a sure guide, and sooner or later he will reveal himself. In this district the Reeler is very local in its distribution, and variable in its choice of a habitat from year to year. In some seasons I have seen several pairs feeding young on one marsh, whereas the following year not one will be found in that area. This inconstancy is characteristic of the Grasshopper Warbler I think, and utterly unlike the other species of Warbler, all of which return to the same breeding grounds, and may be looked for with certainty, unless some radical change—such as the destruction of undergrowth—has been wrought in their territory. In 1907, 1911, and 1913 I knew of three or four pairs of Grasshopper Warblers in one area, whereas none nested there during the intermediate summers. On the other hand, there are two localities where I have never failed to see one pair every year for the last fifteen years. In 1923 all the usual sites were occupied, and one entirely new area was tenanted by one pair at least.

Between April 19 and 22, 1913, I saw several male Grasshopper Warblers chasing each other and fighting in the air. It was exceptionally bitter weather, but this did not seem to affect the bird's spirits. They reeled lustily from the topmost twigs of some sallow bushes, vying with one another as to which should produce the most sound. Then crouching down and assuming a truculent attitude, one would suddenly launch itself into the air and attack a rival. These alarms and excursions on the part of the cocks were evidently fights for territory, for as far as I could see no females were in evidence.

As soon as the hen birds appear, the cocks begin to pay court. Though soberly clad in a suit of russet-brown, and possessing neither gaudy colours nor a particularly melodious voice, yet I have never seen any other Warbler assume such beautiful attitudes when courting. He approaches the female with the inevitable bit of dead grass in his bill, which amongst many species of small birds seems to indicate serious and honourable intention. He then prostrates himself before her, spreading out both wings and tail until the whole of his tiny body resembles a miniature fan; and the curious quivering movements accompanying this display are like the play of a fan. His attitude brings into view the æsthetic value of the delicate pattern woven into the texture of his plumage, and especially shows up the fine regular dark markings of the head and neck.

One of the chief charms of the Grasshopper Warbler is its elusiveness, for it is—"shy almost as thought itself, of human ken." The male is, I think, the shyest of all our native birds, and the most difficult to keep under observation for any length

of time. Nevertheless, it makes the marshes pulsate with its sustained trill. These faint sound-waves rapidly recurring have a penetrating power greater than many a louder song. One instinctively pursues the invisible singer in order to get a glimpse of him if possible. The song forms an important part of the courtship display, and is then often uttered as the cock crouches on the ground before the hen. But while the hen is brooding, the cock loves to conceal himself in the heart of a leafy sallow bush and sing; if you try to flush him he merely drops into the coarse grass. As a rule he does not go far away, but he is a past-master in the art of skulking. You may beat round the sallow bush, feeling absolutely certain that the Reeler is there, and only at the last moment, when all hope of flushing him is abandoned, he will suddenly fly up from under your very feet. Even then you only catch a momentary glimpse of him as he skims over the tall grass and immediately drops into cover. But if you will wait patiently near his chosen bush, the shy little Warbler slips back by devious ways and sets the very heart of it vibrating with his curious trill. By-and-by, as he gains confidence and ascends to a higher branch, you can watch the sinuous movements of the singer's head and neck by means of which he is able to throw his voice in different directions. It is owing to this constant movement whilst "reeling" that the Grasshopper Warbler has been credited with ventriloquial powers. There is no other British bird's song in the least like his.* It is not a song at all, if song means melody, but rather a low vibrating undercurrent of sound rising and falling, now softly then a little louder. It may continue only a few seconds or be prolonged for several minutes, in either case it ceases as suddenly as it began, and its cessation only emphasises the silence of the night; for it is at twilight, and during the night, that one hears the Reeler best. It derives its local name from the likeness of its song to the sound made by the reel formerly used by the hand spinners of wool; and *not* as one is so frequently told, because it is like the "spinning" of a fisherman's reel. One could imagine that the song had been wound round a reel inside the bird and was gradually being drawn out in a continuous thread.

Each year, whenever I hear the Grasshopper Warbler afresh, my mind reverts to the first time I ever heard its song. This was in May, 1901, on Barton Broad, where the night air is laden with the pungent scent of bog-myrtle. That evening, the moon rose a dull copper red above the rim of the level marsh. It was one of those wonderful pageants of night only to be seen in a flat country, where under certain atmospheric conditions, familiar things appear exaggerated in size. So, as the moon hung above the horizon, she seemed gigantic and overpowering. The marshes were strewn with the pale beautiful flowers of the bog-bean (*Menyanthes trifoliata*), dew drenched yet upright and rigid as sentinels. One waited with awe for the first note that would break this mystic silence. Suddenly two or three Grasshopper Warblers began to reel, and their low vibrating song seemed the one articulate sound that was in perfect harmony with such a night. The thrill of a new experience under such conditions, and the joy of it, will be understood by every bird-lover.

Yet though more secretive in its ways than any other bird, it is quite one of the tamest to photograph, and never resents the disturbance which the photographer is bound to make in its surroundings; neither the exposure of the nest nor the erection of a shelter seems to cause it any alarm. The nest, which is usually found about the middle of May, is built by both birds, and placed wherever the tangle of rushes, sedges, or rank marsh grass is thickest. It varies considerably in composition, as the builders

* Except the rare Savi's Warbler.

seem to use whatever material is handy, and to adapt the nest to its surroundings. I have in my possession two nests taken after the young had flown. One came from a wet marsh, and is made of dead sedge-leaves carefully woven into a kind of chequer pattern, interspersed with moss on the outside, and the two-inch-deep cup is lined with dry grass. Altogether, this nest is akin to the typical nest of Savi's Warbler. It was placed several inches above the moist ground, and was undoubtedly that of a Grasshopper Warbler. The other nest which was built on the ground, is a large loose structure composed of dry grass and moss, broader and shallower, and in general appearance quite different from the first. Another which I saw on June 16, 1911, also made of moss and grass, was built on the top of a Reed Bunting's nest.

Sometimes when the men are marsh mowing, they will find a Grasshopper Warbler's nest. It is then mown round carefully, and sufficient cover left to afford protection and privacy for the sitting bird. This kind of nest is always a godsend to the bird-watcher; you are able to find it with ease, and can enjoy several days of intimacy with the most confiding of all our wild birds. The hen is so small, or her dwelling so large, that she almost disappears from view when brooding. Sometimes only her beak and the end of her tail are visible. When the young are hatched, it is easy under these conditions to watch all the comings and goings of the parents, as there is so little cover to conceal them when the surrounding vegetation is cut away. I have sometimes just thrown myself down on the grass a few feet from the nest, and made no attempt at concealment.

The movements of the Grasshopper Warbler are characteristic and unlike those of any other bird. Perhaps the Tree Creeper approaches it more nearly than any other species. If one could transpose the habitat of both, and induce the Reeler to climb trees and the Tree Creeper to slip through tangled undergrowth, their methods of locomotion would be similar; for there is something mouse-like about the actions of these two otherwise totally dissimilar birds. The manner in which the Grasshopper Warbler threads its way through intricate foliage lacks, however, the mechanical action of a mouse, as the bird glides instead of running. Its approach is heralded by the slightest possible rustling of grasses, and on still days this faint swishing sound can be heard some time before the bird is in sight. Yet almost before you are aware of its coming, the tiny lithe brown Warbler slips into the nest, and with a little contented shake of its feathers settles down to brood.

It is only on rare occasions that the Reeler will fly directly from the nest—in fact, it cannot do this unless some cover has been removed. When alarmed, it simply slips into the surrounding tangle. When the hen is really angry, she ruffles up her plumage and transforms herself into a tempestuous and fluffy ball. The male shows his masculine displeasure by rapidly spreading out his tail fan-wise; always a beautiful display of emotion.

Both parents feed the young and are courageous in their defence. They will flutter round your feet feigning injury and doing their level best to lure you from the little ones. In fact, I would give the avian equivalent to the V.C. to the Grasshopper Warbler, because on one occasion a female of this species displayed extraordinary pluck, and dared attempt what no other bird ever dreamed of doing in all my photographic experience.

On June 3, 1906, I was concealed within a shelter of reed-thatched hurdles, watching and photographing a pair of Grasshopper Warblers, which were busy feeding a lively brood of six. As one nestling knew all that was necessary with regard to self-

preservation, I put it into my pocket lest it should impart some of this wisdom to the others, and so create a panic. When I was comfortably ensconced inside my screen, I placed this nestling on my knee and tried to make friends with it. The youngster was quiet and contented for a time, but gradually showed increasing displeasure when it heard the old birds distributing dainties amongst the other nestlings. Finally it fluttered on to the rim of my upturned cap, which partially screened my peep-hole, and with angry cries informed its parents of its whereabouts, and demanded food.

I saw the hen pause and listen; then to my intense astonishment, she came creeping into the shelter by means of the hole cut for my lens, and past the big black camera and the staring lense, which usually strike terror into a bird, even from a distance; then slipping round to a wooden upright supporting the tent, she called her chick, who fluttered up to its mother for food. Just as she was in the act of transferring a large and juicy caterpillar from her own bill to that of the nestling, she caught sight of me. I evidently gave her a horrid shock, for she fled in haste, but meanwhile the disappointed nestling complained bitterly. I kept very still, and soon the courageous mother returned, and creeping furtively inside the tent, climbed to the top of my camera and again called the youngster, who fluttered up and was fed. I replaced the nestling in my cap, and moved it a little nearer the entrance hole, so that the old bird could feed it more easily. She returned several times and grew less suspicious of me with each visit; but as I had secured a number of photographs before this invasion of my tent began, I decided not to worry the plucky little bird any longer; and after fixing a marked ring on the young bird's leg, I returned it to the nest. This process occupied a few minutes, during which the mother ran round and round with trailing wings, pretending to be wounded. She came so close at times that I believe I might have caught her; and all the while she uttered a shrill weasel-like cry, quite different from that of any other bird.

The male, meanwhile, ran round distractedly, expressing emotion in the usual way, by fanning his tail, and uttering a sharp "T'whit, t'whit." This note, when rapidly repeated by either parent, always has the effect of making the young crouch down in the nest.

I have seen the young fed on small green caterpillars, flies, and woodlice. Sometimes one tit-bit is brought at a time, but often parents come with an assortment of dainties, which are placed inside the gaping mouth and pushed well down the throat. Sometimes the whole amount of food is temporarily placed inside one nestling's gape, and then rapidly distributed amongst the others—a method of feeding which must be very tantalizing to the original recipient, whose mouth has merely served as a dish. This method of feeding the young is common to many species and probably saves time and waste. One pair of Grasshopper Warblers I watched fed the young forty times in one hour.

Until the young are a few days old, the adult Grasshopper Warblers feed and brood alternately; but towards noon, the hen broods for some time while her mate continues the feeding. The nestlings have three black spots on the tongue, placed like the points of a triangle, one on the tip and two above. The use of these tongue and palate markings which many nestling birds possess is still a mystery.*

Young Grasshopper Warblers remain in the nest about twelve days, but if disturbed they scuttle out when only seven days old. They are ungainly little creatures, with abnormally long legs. Doubtless this length of limb in the young assists them

* See the chapter on the Bearded Tit.

in their skulking habits; for the instinct which prompts the adults to creep furtively through tangled byways is early developed in the nestlings. Legs seem of much more importance to them than wings during the first part of their career. Food is abundant and easily obtained on the marshes; and as insects and their larvæ form the principal diet of both adults and nestlings, long and sustained flights are unnecessary, and seldom indulged in either by old or young. One cannot but endorse Mr. Warde Fowler's opinion that the Grasshopper Warblers would "gradually lose their wings as genuine organs of flight, if it were not for the yearly necessity of migration."*

I have never been able to catch sight of the young when once they leave the nest. They stalk in the tangled herbage, where they are fed by one or other of the parents. I am not sure whether the male bird continues to feed the young after they are fledged. He ceases to sing much as soon as they are hatched, and does not begin again until July. That, at any rate, is my experience. Mr. Elliott Howard† says that the hen does all the feeding, while "the males lead a lazy life, singing and playing with one another."

* *A Year with the Birds*, p. 156.

† *British Warblers*, part i., p. 22.

XIII

THE SHORT-EARED OWL

ASIO FLAMMEUS (Pontopp.).

THE Short-eared Owl was a regular breeder on some marshes near the sea up to 1904, after which there was no record for that locality until April 11, 1914, when a nest, containing four eggs, was unfortunately mown up. A few isolated pairs have bred since on certain inland marshes. In 1918 I saw one nest, and in 1922 there were three; in 1923 I heard of one only. I have seen the Short-eared Owl in its breeding areas throughout the year, but it is principally a winter visitor to the Broadland, arriving during October and November.* Sometimes a dozen or so will be flushed in one day's walk, but these are generally new arrivals, which disperse over a wider area as time goes on and food becomes scarce. If there is a plentiful food supply, a few may stay to breed. Hard weather drives them further South, as their principal food consists of the smaller voles, beetles, and small birds.

During the return journey in spring, little flocks of Short-eared Owls may again be met with on the marshes, and occasionally, if the locality pleases them, a few pairs remain to breed. No doubt, if the stock of home-bred birds increased, the Short-eared Owl might again become a regular resident bird.

When the Short-eared Owls first reach our shores they skulk amongst the herbage and almost allow one to step on them before they take wing, so that when several of these big birds suddenly fly up from your feet and float away on noiseless wings, or hover in mid-air like giant moths, the effect is almost ghostly. I am invariably startled by them and awed by the fierce expression of their round golden eyes.

One November day, when I was walking casually along the seashore with my camera slung carelessly over my back, a Short-eared Owl suddenly got up from a depression in the shingle just ahead of me. Before I could swing my camera round, the Owl had floated out to sea, and hung poised over a huge wave. It was a wild but sunny day, with an off-shore wind which tossed back flowing masses of spray from the curling waves. There were battalions of "white horses" all along the shore, and the Owl hovered in the spindrift. The sunlight lit up its tawny plumage from brown to gold, and made rainbow haloes all around. It hung there for several minutes, right in the spindrift. I know how these Owls love a shower-bath, but I have never, either before or since, seen one poised over the sea enjoying a bath in such ideal surroundings. By-and-by it flew out to sea, and vanished from my sight.

On another brilliant day in December I was walking round Holy Island when I came upon a Short-eared Owl hunting for food. It was beating up and down a bit of rough pasture-land close to the sand-hills; there was no wind, and that corner of the island was bathed in warmth and sunlight. I watched this Owl at very close quarters from 9.30 till 10.30 a.m., and when I returned at noon it was still at work. Sometimes a second and third Short-eared Owl came out of the hills and tried to hunt the same meadow, but they were invariably driven away. This species is

* There have been several nests this year (1924).

numerous in Holy Island during the winter, for I often put up five or six together from one gap in the sand-hills, but seldom had the luck to watch them hunting.

On this particular day (December 19, 1914) three or four were foraging for food in broad daylight and brilliant sunshine, but I kept my eyes chiefly on the movements of the one nearest me. It worked the field in regular beats (just as a setter might do), flying at a low level, never more than two feet above the ground. Now and again it hovered for a few seconds with facial disc bent forwards and legs hanging down, poised, ready to strike. Suddenly, with rapidly uplifted wings, it would pitch forwards, and drive its talons into the turf, then spring up a few inches, and again let drive with its feet. Striking its wings upwards seemed to give additional force to each pounce. After several of these unsuccessful swoops, it walked about grabbing at the tufts of grass exactly as my captive birds used to do. Having discovered nothing worth eating, it resumed its former tactics, and flew up and down the field, sometimes rising into the air and circling round as if on the watch for marauders. When tired of hunting, it alighted on a post and peered into the grass, moving its head rapidly and twisting it about after the ludicrous manner of its kind. When sufficiently rested, it began patiently to beat up and down the field again. It looked very beautiful in the sunshine, and more than ever like a great soft moth, both in form and colour and silent movements. As it flapped slowly and noiselessly towards me, the pale face and brilliant yellow eyes looked most fearsome.

When another Owl tried to poach on this one's preserve it was driven away, apparently without malice. No actual fighting occurred, only an intimation: "Clear out; this is my ground. You can go over the wall." After several beautiful turns and twists together in the air, the intruder betook himself to a field on my right, while a third annexed a bit of waste ground on my left. Neither of these birds took any notice of me, though I stood up against a wall and watched them. As a rule the Short-eared Owl is very keen-sighted, but perhaps I was partially screened by a flock of inquisitive sheep which followed in my rear, and remained close to me.

I shall never forget my first sight of a Short-eared Owl's nest. It was in 1904, soon after I had become acquainted with the mystic marshland. The Vincents—father and son—roused me at dawn, and silently we punted to a far-away marsh and landed on the wall at daybreak. The Owl's nest was under a big bramble bush, about three feet from the dyke wall. There was no real nest, the three half-grown young were sitting in a depression lined with a few rushes; the nestlings were all of different sizes and stood up shoulder to shoulder as we approached, looking at first rather surprised and innocent; but their expression soon changed to one of great determination when I bent down to touch them. They snapped at me with their bills, ruffled up their plumage, and swelled to twice their matured size, and then threw themselves on their backs and struck out with their strongly armed feet. The old female hovered above us hissing angrily, and occasionally swooping low down, as if to strike at us. She was joined by the male, and both birds floated over us, hissing and making a spitting noise like an angry cat.

Other nests I have seen were usually under a clump of very thick rushes. This rank growth overshadowed the sitting bird like a green bower. The male generally mounts guard on a little raised hillock, or on an anthill some distance from the nest, and when sitting bolt upright, with ear-tufts erect, he looks like a small cat. The Short-eared Owl is not by any means strictly nocturnal. He loves the sunshine and will often select a patch of sandy earth and bask in the warmth, spreading out alternate

wings and thoroughly enjoying life. Part of the day he sits and thinks, with his head drawn back and almost lost in the plumage of the neck, the ear-tufts laid flat, and consequently invisible. In this peaceful attitude, he ruminates with half-closed eyes on the problems of existence. But this travesty of the dreamy philosopher is a mere pose; he is really quite wideawake. The great flat marshes lie before him like an open book, and he is keen to read the first signs of danger. He spies you a long way off and flies away, circling round the marshes as if he had no interest in the secret bower beneath the rushes. But if you approach the nest, and especially if the young are hatched, he flies back and hangs overhead. As he bends down his facial disc, hate gleams from his amber eyes. His ear-tufts are erect and stiff with rage. He expresses his wrath by hissing cries and vengeful snappings of his strong beak. Both sexes behave in exactly the same manner. They are splendid-looking birds when roused, and their noiseless flight is impressive. As they hang in mid-air with outstretched wings, measuring twenty-four inches from tip to tip, they expand each flight and tail feather, so that the sunlight and blue sky filtering through the soft vanes give an added charm to their magnificent poise. Sometimes these Owls will suddenly bring their wings together with a sharp cracking sound and swoop down within striking distance of your head, but I have never been actually attacked by them.

I once saw one of my captive Short-eared Owls strike at the face of a plumber who went into their aviary to mend something. Fortunately he was a gamekeeper's son and knew a little about Owls, so dodged just in time, and the bird only succeeded in removing his cap.

When fighting on the ground the Short-eared Owl lies on its back and strikes upwards with beak and claws—principally claws. When it grips an adversary the two roll over and over together until one or the other looses its hold. Theirs is rather a deadly grip, for when the talons meet round the leg of a less powerful bird they are strong enough to break it.

The young if approached rush backwards, hissing and snapping their beaks until they come up against something firm; then they let out with beak and claws. When scrambling into safety they are the most ludicrous little objects imaginable. Their manner of running reminds one of an ungainly ploughboy, while the soft downy plumage shakes to and fro as they waddle along.

These Owlets look preternaturally solemn, especially when the ear-tufts begin to appear; nevertheless, they possess a sense of humour, and are far more intelligent than any birds I have ever kept, not excepting members of the Crow family. The latter can, indeed, be made to *talk*, but the Short-eared Owl will almost *act*.

I have reared several orphan Short-eared Owls, their average life in captivity being about five years. I did not find that they required a large amount of food—two or three mice, or one joint of rat, or two ounces of raw meat, proved sufficient for the twenty-four hours. No doubt *wild* birds need more food, for one can never accurately gauge the amount required by birds on the wing from the supply that is sufficient to keep aviary specimens in good health.

A dead mouse was pounced upon and seized in one powerful foot, two and occasionally three talons meeting round its middle. If a small mouse, it was immediately swallowed head first, in about three strenuous gulps. Sometimes a fourth was necessary in order to get rid of the tail, which often hung helplessly down from the Owl's beak for several seconds. More bulky food was pounced upon and dragged away with one foot, then the bird stood on it with both feet and proceeded to tear

it to pieces. The Short-eared Owl generally prefers to feed on the ground, but now and again it will carry its prey to a stout perch and there devour it. As a rule this only occurs when the food consists of something small—a mouse, for instance. Sometimes a bit is held up in one foot and carefully examined before being consigned to its ultimate destination. Any food not required at the moment was always buried under stones, lumps of earth, or leaves. Sometimes the Owl would sit upon these hidden stores all day long in order to prevent theft.

During the five or six weeks of the autumn moult, the Short-eared Owls seem to need double the amount of food stated above. When hungry they stamped on the ground, shaking the soft plumage of the legs in a ridiculous manner, and called ceaselessly until fed. On very cold days in winter they required still more feeding.

One habit of my captive birds was of special interest, because though they were only just hatched when given to me, yet they soon developed the hereditary method of searching for live prey in the grass. They were given fresh turf of the roughest description about once a week. As soon as it was thrown down, the Owls used to walk all over it, peering into all the interstices. Where the grass was thickest, they grabbed at it with their feet, slowly raising one foot at a time and thrusting it into the grass. Evidently they were feeling for some living moving prey. Now and again an extra grab would remove a bit of soil and herbage; this was always carefully held up to the eye, and minutely examined. As a rule, of course, this species swoops down upon its prey after the manner of a Kestrel.

If any unfortunate small bird found its way into the Owl's aviary, they usually chased and killed it at once—one grasp of the strong talons and all was over. But if replete, no notice would be taken of these intruders.

One winter morning I saw a flock of fifteen Goldcrests invade the aviary and busy themselves for a long time picking up food, and chattering gaily all the while. My first impulse was to run and frighten them all out, but the Owls made no attempt to molest them. The tiny invaders seemed rather to excite their interest, and by-and-by the whole merry party found its way out none the worse for this adventure.

Blue Tits frequently came to grief, and two years after the Short-eared Owls came into residence a nesting-box near their aviary, which had hitherto been tenanted for years, was entirely forsaken. The young broods used to perch on the wire-netting, and were either dragged inside by the remorseless Owls, or else slipped in of themselves and paid the penalty with their lives.

Young Short-eared Owls up to ten or twelve months have a curious habit of moving the whole facial disc till the eyes are vertical. In fact, they screw their faces almost right round in order to get the correct angle of vision. One would imagine that in their youth they suffer from bad astigmatism! This habit grows less with age, but even an old bird, if suddenly confronted with something which rouses intense curiosity, is betrayed into doing it.

Some years ago a gang of navvies were working for three weeks on the main road outside my house. I then happened to have two Short-eared Owls about two months old. Every day during their dinner-hour these men would line up against the stable wall and spend all their spare time watching the curious attitudes of the Owlets. The latter seemed equally interested in the navvies, but never succeeded in correctly focussing the whole gang. Their endeavours to do this produced peals of laughter from the men. After about three months, instead of screwing round the facial disc, the Owl bends it forwards and downwards, when studying any object of interest.

My captive birds were also sensitive to colour. If I went into the aviary in a blouse which had any kind of pattern on it, one or the other would be sure to alight on me and gently trace the pattern with its bill. Black they abhorred and fled from in alarm, hissing angrily and retiring to the remotest corner of the aviary if any one approached them in black array.

I have already remarked upon the Short-eared Owl's sense of humour. I could relate many instances in proof of this, but the most amusing episode occurred after I put two young Kestrels in with them. Both the Owls and Kestrels were birds of the year.

One morning a Kestrel was sunning himself on a board, lying along it with one wing stretched out so that the tip projected beyond the board. One of the Owls seeing this, and also that the Kestrel was asleep, alighted noiselessly alongside, and watching its opportunity suddenly seized the tip of the Kestrel's wing and gave it a sharp tweak. The startled Hawk awoke, screaming; but the Owl was standing motionless, with his face turned skywards, looking the picture of innocence. I went in and said to the Owl: "Rabbi Ben Ezra,* you're a bad lot." He flew on to my shoulder, rubbed his beak against my cheek, and uttered queer little mewling sounds, which is a way these birds have of conversing with kindred spirits.

Rabbi was a very handsome bird—pure white where he should have been buff, while the dark transverse bars and spots were a deeper sepia than those of his buff brother. Both birds came from one nest. Though the facial disc is round and cat-like, yet these Owls can, when disgusted or bored, entirely alter the shape of their faces by erecting certain feathers and depressing others, until in profile their cast of countenance is Semitic.

Between them these Owls bullied the Kestrel considerably at times, by catching hold of one of his legs, and dangling him thus from his perch. The Kestrel was vociferous and usually brought someone to his rescue, but the Owls let go as soon as detected in these assaults. They never did him any harm, it was pure and simple bullying on their part. A Little Owl (*Carine noctua*), however, when put in with the Short-eared Owls, was calmly accepted, tribal claims evidently being recognized. When seated side by side with the larger Owls, it looked like a small boy imitating the manners and bearing of grown-up people.

All the Short-eared Owls I ever kept delighted in sunbaths. The first time I ever caught one indulging in this luxury I thought he must be ill—if not dying. He sat on a stump, erect and motionless, with expanded drooping wings, while his face was turned upwards to the blazing noon-day sun. I touched him, but he did not move; then I ran for a camera, and had time to change some plates and photograph him in this extraordinary attitude before he eventually came down to earth.

After a spell of dry weather, they loved being syringed with the garden-hose. I discovered this accidentally one day when syringing a rambler rose which covered half the aviary. Of course the hose must not play directly on the birds, but be held upright so that the water falls in a light shower. These Owls look splendid when taking a shower-bath. The wings are expanded and stretched to their fullest extent; the tail is fanned, and all the contour feathers are erected so that the water can actually penetrate to the skin. Meanwhile, the Owl sways to and fro, raising first one wing and then the other, after which a long and efficient preening takes place. This

* The attitude of smug complacency assumed by these Owls when replete is suggestive of a well-known line from Browning's poem of that name—"Irks care the crop-full bird?"

toilet operation would often last half an hour. They also loved a wild snowstorm; it seemed to excite and delight them more than anything else. In fact, any rough weather would make them lively.

One died of some lung trouble. I had him indoors for a fortnight, when he used to sit in front of the fire, a curious and pathetic object. Viewed from the back he looked like a tiny old woman in a brown shawl, every now and again giving vent to a little short and very human cough.

Of late years I have missed these fine-looking birds on the marshes and would give a good deal to see them established in their old haunts. A species so interesting, useful, and ornamental as the Short-eared Owl should be given every encouragement, wherever it may breed. But alas, it is easier to exterminate a somewhat rare breeding species than to reinstate it.

XIV

THE LONG-EARED OWL

ASIO OTUS, Linn.

THE Long-eared Owl nests in the fir plantations, and not on the open marshes. It should nest in trees, utilizing old nests of the Sparrow Hawk, Wood Pigeon or Jay; but at Hickling, since the 1912 flood destroyed a number of trees, the Long-eared Owl has nested on the ground.

It is not seen in the daytime very often, though by no means strictly nocturnal. Towards evening it frequents the marshes, floating on noiseless wings over a wide area in search of food. During the day it sits against the trunk of a fir tree, or in thick cover. Its ear-tufts are much longer than those of the Short-eared Owl, for they measure one and a half inches when erect. In its hours of leisured ease—which seem many—this Owl looks like a comfortable cat as it sits hunched up against a tree, where its soft brown and buff plumage crossed with dull striations, camouflages it wonderfully. When desirous of effacing itself completely, the Long-eared Owl erects the ear-tufts and draws itself up until it looks more like an elongated bit of dead wood than a bird. Sometimes in the autumn and winter you may flush six or seven of these Owls, and even more, on the outskirts of a plantation, especially near the sea. It is rather startling when a number of fearsome looking objects suddenly dash out of a bush, and, glaring at you for a moment with sombre amber eyes, float silently away. Most of these Owls will probably be overseas migrants, or birds from more northerly breeding areas, working along the coast, as the local resident birds remain in the vicinity of their breeding haunts throughout the winter. As is the case with the Short-eared Owl, the ears are mere tufts of feathers springing from either side of the head, and these can be erected and repressed at will. The Long-eared Owl has one strong and well-developed feather in each tuft. Sometimes during the six weeks on the autumn moult, one only of these tall feathers, will be left unmoulted for days. When this is erected, the Owl presents an absolutely disreputable and rakish appearance.

When it nests in trees the Long-eared Owl does not even put the old habitation it has annexed in a decent state of repair, but merely flattens it down, leaving a slight depression in which to deposit its five or six eggs. The hen incubates from the time the first egg is laid. If she did not the eggs would certainly come to grief, as often they rest on a mere platform of sticks. The male mounts guard on a branch near and feeds the hen during the four weeks or so of her brooding, and also during the extreme youth of the nestlings. If the hen is approached while brooding, she peers down at you over the edge of the nest with ears erect and all the feathers round the facial disc puffed out, so that she looks like some uncanny animal. There is a great fascination in watching her because of the queer grimaces she makes, while maintaining an impressive silence. But when she nests on the ground the Long-eared Owl flies away if disturbed; though so well does she harmonize with her surroundings you might pass her a dozen times a day and not be aware of her presence. If

the eggs are well incubated she sits very tight, and allows the observer to approach within a few feet.

The nest depicted here was found on April 6, 1915. It then contained three eggs. There were four on the 8th and five on the 10th, so that the eggs would appear to be laid at an interval of two days, as is said to be the case with all British Owls. I first saw this nest on May 1; it then contained four eggs and one newly hatched young, and one of the eggs was chipping. Close to the nest were the remains of a Blackbird, and a short-tailed field-vole. The breast and liver of the former had been devoured, while the liver and minute bits of flesh were all that had been plucked from the vole. This was at 10 a.m. I put up my tent about twenty feet from the nest and went back to the island in order to tidy up my dark room. While occupied in this manner, I saw one of the prettiest sights I had ever seen anywhere. It was a cruel day, a gale was blowing from the north-east, bringing with it torrents of rain and stinging hail. The north side of the island is protected by a reed fence about twenty yards in length. The battens which hold the reeds in position are an inch thick on the land side, and there is a double row of them. Seeing a cloud of Swallows and Martins enveloping the island, I went outside. These *Hirundines* were evidently new arrivals, weary and dispirited after their journey. The two lines of battens were thick with these birds, all sitting close together with their heads towards the fence, and their backs towards me. There were Swallows, House Martins and Sand Martins; they were all so densely packed that not another bird could find a foothold. At first they flew up and enveloped me in a cloud of wings, but as I remained motionless they all settled down again. It was impossible to manipulate a camera in the drenching rain, so I could not photograph them. I have never seen anything so thrilling since. After getting all my apparatus ready for the Owls I went back to the mainland where I was staying, and left the storm-tossed travellers in possession of the island.

The next day, May 2, I again visited the Long-eared Owls and found a second Owlet hatched. Both nestlings were blind and scantily clothed with down, which was sparsely distributed along the feather tracts, being much thicker on the wings. When the wings were closed the Owlets looked like balls of white fluff, but when they fluttered their wings feebly in search of shelter, using them to balance their general top-heaviness, bare patches of pink skin were visible. Their heads were well covered, and two pointed tufts of down clearly defined the position of the "horns" even at that early stage. In a few days the Owlets assumed a greyish tinge, owing to the sprouting of the feathers.

On May 4 two more eggs were chipping, and on the 5th a third bird was hatched; but one egg had disappeared. Some days later I threw out the fifth, which was bad. At the end of seven days, the first Owlet hatched was just twice the size of the third.

The hen bird sat very close during the first week and allowed me to stand near and watch her indefinitely. On May 3 I made my first exposures. The rustling caused by putting up the camera frightened her away and during her absence the young uttered a feeble "Cheep." When leaving the nest she made no sound, but silently floated over the low bushes like some giant moth, and after circling overhead for a few moments, she flew to a tall tree where her mate joined her. Neither of the adult birds made any pretence to defend their young; together they watched and waited, stretching out their necks and moving their heads from side to side, and uttering queer moaning sounds like long-drawn sighs. When all was quiet in the tent,

the male returned to his lookout post on my left, and the female gradually approached the nest.

Her behaviour on each occasion, when I photographed her, was curiously stereotyped. She always returned about ten minutes after I had put up the camera and invariably resented the first click of the shutter. My only chance of securing an animated picture was to photograph her the moment she swooped down to the nest, in front of which she always paused for a second before covering the young. I was keenly alert in order to seize this psychic moment, and had to remain absolutely motionless during her absence, otherwise she would not return. Her movements were so swift and noiseless that it was some time before I could detect the faintest sound heralding her approach. By listening intently I learned to distinguish a very faint "Ooh, ooh," high pitched and barely audible above the whispering of the wind in the leaves. At first I mistook this for the far-away cooing of Wood Pigeons, but an answering moan in a lower key and coming from my left, convinced me that the sounds were produced by the Owls. This duet was kept up until the high-pitched moan (which sounded as though it were blown through a reed) came from just overhead. The next moment the female would be standing by the nest, wide-eyed and alert, while a second or two later she assumed the supine attitude characteristic of this Owl when brooding. During the four, seven, or ten hours I chose to sit by her, she seldom altered her position, though her changes of expression were varied. For the most part she sat gazing at me through narrow slits of eyes like a contented cat, the "ears" half raised. On several occasions I put my hand through the front of my tent in order to insert lenses of varying focal length; sometimes this annoyed her, and she showed her indignation by opening wide her eyes and bristling her feathers, and, judging by various spasmodic jerkings of the body, she also made inaudible remarks!

The male would warn her of danger by uttering the deep-drawn "Ooh, ooh." If one or other of the gamekeepers came through the wood, or if I lifted the flap of my tent and crept out for a change of air and position, her mate told her of it.

I visited the Owls at various hours and spent much more time with them than was necessary to secure photographs, because I was very keen to see them fed; but in this I was disappointed. Young birds of prey require very little food during the first ten days of their lives, and the food given is always doled out in minute shreds, therefore the hunting is not very strenuous. No doubt had I been able to continue my observation a week or two longer, or if I could have stayed in the wood all night, I might have seen the male bring food.

There was often food in the nest all day. I found the remains of very young water-voles, short-tailed field-voles, Chaffinches, and on one occasion the tail end of an adult Swallow, besides the Blackbird already mentioned. One evening after dark, while the male Owl was still at his post in the fir tree, an aeroplane circled over the wood. I hoped it was the usual patrol somewhat belated and astray, and not an oversea migrant! It was curious to note the behaviour of the birds during this disturbance. The Wood Pigeons which had come in to roost rose in a mass and fluttered noisily round and round; Pheasants crowed and flew to and fro; all the small birds twittered and called. A Whitethroat and a Willow Wren began short snatches of song and broke off abruptly—but the Owl, which I could but dimly see, sat tight and showed no emotion.

My last photographs were taken on May 11. They were the last of the series.

I reached my tent at 2.45 a.m., but the young had finished their meal and the male bird was at rest. It was a splendid morning when my host and I started for the mile and a half's row. The Broad lay calm and still, reflecting the stars like a huge mirror, and the air was soft and warm as the dawn slowly unfolded. But later on the cold grew intense while I waited for the light; my wet boots froze to my feet, and when I came out of my tent at 6 a.m. everything was covered with white frost and there was a mist all over my lens. I developed the photographs with a sinking heart, but luckily the mist on the lens had not affected the picture, though the rime on the bramble leaves shows distinctly. I was able to secure one photograph showing the two young nestlings against the old bird. The third Owlet was too tiny to face the cold and always managed to creep beneath his elder brethren when the mother was away. Feathers began to appear about the fourth day and after that the young rapidly increased in strength and began to show fight. The first Owlet had left the nest on May 24 and could not be found; the second was only a few yards away, while the third remained still in the nest.

The young as they develop are delightful little downy things, aldermanic in shape and solemn in demeanour. When four or five weeks old they flutter softly out of the nest if alarmed, and when pursued they do not rush backwards like young Short-eared Owls, but transform themselves into fearsome-looking objects by ruffling up the contour feathers, and bringing the wings forward until they appear to spring from the sides of the head. Then the Owlets sway to and fro with a rhythmic movement, which gradually gathers in impetus; meanwhile, they glare at you with their orange-coloured eyes (deeper in colour than those of the adult birds) and snap their beaks violently. Sometimes this display is not accompanied by any sound, for the Long-eared Owl is rather a silent species, but the Owlets occasionally hiss loudly.

The adults adopt this same fearsome attitude previous to fighting. As far as the inmates of my aviary were concerned, it always had a terrorizing effect upon them—even Jays and Magpies fled away screeching. The only occupant that ever stood up to the Long-eared Owl was a young Sparrow Hawk; but when it actually came to fisticuffs and he was dragged round the aviary by one leg, even he acknowledged defeat and the supremacy of the Long-eared Owl.

The young utter a curiously disagreeable note, which is like the creaking of an unoiled hinge. When clamouring for food they do not all shriek together, but the cry is taken up by one after another, and so seems aggravated by its importunity. The adults make very little sound, but if hungry they also creak, at any rate when in captivity. In the wild, as they float over the marshes at dusk, a faint mewing sound is uttered which seems to be a hunting cry. In the early spring I sometimes hear weird cries after twilight near the breeding haunts of the Long-eared Owl. These are the love songs of the adult birds, though they sound more like funeral dirges, for the cries are flute-like repetitions of "Ooh, ooh," uttered so softly that often they are a mere sigh. I have stood in the moonlight aisles of the great pinewoods in West Norfolk listening to the sighing of the Long-eared Owl, and I understood why men believed in pixies and ghosts and the restless dead.

There is a beautiful lane between two fir woods running from Potter Heigham Church to Hickling Broad, called "Piccamore Loke" (Pixies' Loke). The Long-eared Owl has nested in both these woods and hunts the marshes between. Certain other marshes not far from my boat are said to be haunted by a pair of lovers, who perished in the reed-beds. In all probability some derelict marshman has mistaken

the moaning of the Long-eared Owl for the wailing of lost spirits. You can imagine anything, and believe anything, under the mystic influence of a Broadland twilight.

I do not know what becomes of the young when fledged, one never sees them about. But probably they are merely hiding amongst the fir branches till dusk; for although not strictly nocturnal, the Long-eared Owl is not so much in evidence during the daylight as is the Short-eared Owl. The young must eventually be driven away, as the actual number of breeding birds in one locality does not vary from year to year.

The food of both adults and young consists of voles, mice, beetles, and occasionally small birds, but the last are not often taken if voles are plentiful. The hen takes whatever is brought by the male, and feeds the nestlings while they are very young, dealing out quite tiny bits to each; but soon both parents are fully employed, and the Owlets soon learn to swallow a small mouse whole. This, however, appears to be very exhausting, judging from the queer way in which they sit motionless for some minutes afterwards.

The Long-eared Owl grips its prey in the same way as the Short-eared Owl, but it also sometimes closes three out of the four talons right round a mouse. A small bird is struck with one foot, and then seized round the neck by the Owl's hooked beak. The end is mercifully quick. But of the many pellets I have picked up in the vicinity of the Long-eared Owls nests, few have contained the remains of birds.

When in captivity, this species infinitely prefers mice to Sparrows, and, indeed, a continuous diet of feathers instead of fur disagreed with both the Long and the Short-eared Owls. At one time I depended largely on the catches of the local Sparrow Club for my aviary food supply. But finding almost any variety of small bird, including those most useful to the agriculturist, were all classed with "Sparrows," I discontinued this means of support.

On June 8, 1909, a derelict and half-grown young Long-eared Owl was brought to me to feed. Where he originally came from no one knew, as no nest had been found where he was picked up. He looked a disconsolate little heap of down and feathers, and creaked loudly for food, stamping on the ground whenever approached. I adopted him, and he soon became very tame, and knew his name—"Moses." When my birds were dispersed in March, 1913, Moses was given to Mr. Armitage Sanders, and lived in London till October 29, 1914.

Moses' habits and behaviour in captivity were identical with those of the Short-eared Owls. He loved an occasional sun-bath, and revelled in shower baths. As a rule he sat well out in the open during the daytime, but always close to a creeper-clad pole. He was livelier at night than the Short-eared Owls, and at dusk used to hang on to the top of the aviary and flap his wings vigorously.

If I came down between three and four o'clock on a summer's morning, Moses generally wore a dissipated and weary look as if he had made a night of it. He seldom made any sound, unless very hungry, but sometimes at night I heard curious wheezing cries akin to mysterious marshland cries which had puzzled me; and in this case I know that they were uttered by the Long-eared Owl.

Two young Long-eared Owls were once brought to my houseboat, and while with me insisted on appropriating a corner of my bookshelf. About 10 p.m. they became very lively, and kept me awake with their curious shrill call. In despair about 2 a.m. I went to my outside larder—it was pouring with rain—and fetched in the remains of a small joint of beef. Having quieted my Owls, I placed the bone on a shelf in my tiny kitchen and again settled to sleep. Suddenly the whole boat gave a huge lurch,

the kitchen window flew open, and I thought someone had broken in. However, when fully awake, I realized that the proximity of a beef bone to the open window had been too much for the morals of my big retriever dog.

In mediæval symbolism, Satan was often represented by the Long-eared Owl. This species had a bad reputation in legendary lore, principally because of its ears or "horns." But in the beautiful Early English Church of Swavesey near Cambridge, one of the modern oak pews is surmounted with a finely carved Long-eared Owl, holding a mouse in its beak. As a lover of justice, this seemed to me a proper setting for one of the most useful, and certainly the handsomest, of all our native Owls. They serve us well by destroying vermin, but too often they are themselves slain—the victims of ignorance and prejudice.



YOUNG LONG-EARED OWLS SWAYING IN RESENTMENT.



THE SPARROW HAWK APPROACHING HER DOWNY BROOD.

XV

THE SPARROW HAWK

ACCIPITER NISUS (Linn.).

THE female Sparrow Hawk always seems much more in evidence than the male, perhaps because she is larger and slower in her movements. The male is very swift, and rapidly shoots into cover when observed. Both birds fly lower than the Kestrel, especially when beating up and down the hedges in search of food. They do not hang in the air, and give you the same chance of watching them as the Kestrel does; though often the male Sparrow Hawk may be seen circling round and round the nesting site while his mate is brooding. In February and March both birds go through beautiful evolutions high up in the air, but this is part of the courting display. They wheel round one another, rising in wide circles. First one and then the other will be uppermost, and they rise and rise until only two specks are visible in the sky. When the female is tending the young, I have seen the male approach her in a way that suggests tender emotion of some sort. He stands near her uttering a silvery wavering cry, and gazes at her in a rapt manner with his head on one side, as if quite lost in admiration of his beautiful mate. At the same time he half uncloses his wings, so that they appear to droop from the shoulders. It is as if he opened his arms in order to enfold her. She seems rather to like these signs of admiration and approval, and responds with a similar wavering cry, but quietly pursues her own business all the time. Sparrow Hawks apparently pair for life, and are very faithful to their breeding territory.

The one pair with which I am most familiar builds a new nest every season. Two years in succession they used the old foundation, and probably would do so more frequently but for a pair of Long-eared Owls. The latter birds annex the Sparrow Hawks' nest and are in possession with their brood, when the Hawks are only just thinking of housekeeping.

In May, 1909, I spent some time watching and photographing a family of Sparrow Hawks under circumstances none too comfortable. The plantation in which they habitually nest is the very worst spot in the whole of the Marshland for insect pests. Some of my friends cannot be induced to enter the wood a second time on account of the mosquitoes, and I always dread having to work there for hours together. Photographing these Sparrow Hawks tried my endurance as nothing else has ever done. The moment I entered my carefully built shelter, the mosquitoes rose in battalions from the swampy ground, settled in rows on my hands, pierced through the back-stitchings of my thick driving gloves, crept inside the fastenings, and generally made life unbearable. The female Hawk had a fixed habit of alighting on a branch above the nest, and remaining absolutely motionless for one and sometimes two hours at a stretch before she would feed the young. Consequently any movement on my part was detected by the keen-eyed watcher, and made her more distrustful than ever. My bower was marvellously built of greenery, but in that still airless wood the merest rustling of a leaf was audible; the displacement of a twig would send the Hawk away

screaming, and it might be another hour before she came back. Still, I managed to obtain a few photographs.

The only time when I really enjoyed myself was during the heaviest gale of wind (without rain) I have ever known in May, even on wind-swept Hickling. Thinking photography out of the question, I settled down in my cabin to write, when along came Vincent with his usual cheerful—"Are you ready, Miss?" "No," I replied, "I am *not*; are you mad? Listen to the gale, and look at the water!"

However, he assured me that if we could avoid being swamped by the water, the heart of the plantation would be calm, and added persuasively: "It will be too cold for the mosquitoes to worry about you." So we set out in a small punt across the rough bay. All my apparatus was wrapped in oilskins and tenderly nursed by the somewhat rebellious photographer, who became more sarcastic every time the water broke over the boat. Arguments however were useless, being simply borne away down the wind. Finally, the absurdity of the expedition struck me forcibly, and I shook with laughter. "Don't make me laugh," panted Vincent. "If I lose headway we're done." The tall reeds were prostrate before the wind, and the fir-branches tossed like tortured animate things. But once inside the wood there was complete calm, and except for the moaning of the wind in the tree tops, there was no sound. And what mattered still more—not a mosquito dared venture forth to torture! So that day I had peace, and secured the best photographs; nevertheless, it always stands out in my memory as one of the most desperate adventures ever attempted by a fairly sane photographer.

The young Sparrow Hawks were only a few days old when I first visited the nest, and the hen was still brooding. The male never came to the nest on any single occasion during the time I spent photographing them. Doubtless he was aware of my presence, for whether they can smell or not, both Hawks and Ducks can detect a lurking photographer, however well concealed.

There was a large oak tree about a hundred yards away, and one of its big thick branches was used as a larder by the male Hawk. On this he stood and plucked the small birds caught for food, removing also the heads and wings. Then he called his mate and gave her the ready-dressed birds, and *she* brought them to the nest.

On other occasions, when I have not been photographing, but merely watching Sparrow Hawks, I have seen the male take food to the nest; but as a rule the female feeds the young. As regards the one I photographed, what impressed me most in her method of feeding the downy nestlings during the early stages of their growth was the careful way in which she fed them. Minute shreds of flesh were doled out all round, quite tiny bits; and these were torn from the breast only of the victims. I thought with compunction, as I watched her carefully distributing these, of how roughly I had fed a young Hawk in the train once by cramming lumps of Coot as big as nuts down its gullet. The next day it had fits, and I only saved it by doses of olive oil, administered by means of a fountain-pen filler.

The little Sparrow Hawks stood up eagerly expectant, grouping themselves prettily round their mother, fluttering their tiny wings and uttering little piping notes all the time. The female standing on the nest surrounded by her brood is a noble sight. Her beautifully barred plumage, strong yet graceful outline, keen eye and firm carriage, together with the tender solicitude she shows for the young, are most fascinating.

At the end of the second week, after the breast of a dead bird had been dealt out,

the carcase was left for the young Hawks to play with. They then indulged in a gruesome tug of war, which doubtless is a part of their education. But though dismembering the corpse, they did not even then devour it themselves. The female sometimes ate what food remained in the nest, while I think the male (and perhaps both parents) picked the joints left behind in the larder, as I could never find more than the wings, leg bones, and a few feathers by which to identify the birds used as food. When the nestlings were about a month old however, they began to pick over the carcasses for themselves.

A great deal of conversation was carried on between the female and her brood, but in low undertones which did not carry far. When alarmed, the old birds fled shrieking through the dim silent wood, sometimes swooping low, as if desirous of attacking the intruder.

As far as I could determine the food brought, it consisted largely of Starlings, Missel and Song Thrushes. These could be identified by the wings; but there were also remains of smaller birds, which might have been Larks and Pipits.

When fully fledged and strong on the wing, young Sparrow Hawks still use the nest as a dining-table. On July 6, 1912, four of us crept up to the nest of that year, and watched a fine young bird standing with his back to us, absorbed in the dismemberment of a Starling. By-and-by the two old birds returned, accompanied by two more immatures; they perched on a dead tree near, and gave the alarm with shrill cries. The Hawk at the nest turned and saw us, dropped the half-eaten Starling, and fled away screaming. The four birds were a fine sight, standing up against the sky. The greyish young perched on the topmost spurs of a dead alder might well have been mistaken for a continuation of the dead branches. As soon as the old birds detected us, they began circling round overhead uttering warning cries, which finally lured away the young.

In the immature Sparrow Hawk, the iris is a fine hazel colour, and not orange as in the adult. There is something peculiarly fascinating about this; it seems to impart an expression that is almost human.

When the Hawks had flown away, Vincent climbed up to the nest and found it covered with the leg-bones and wings of birds, principally those of young Starlings, and also of a few Thrushes. Sparrow Hawks seem to take heavy toll of the countless young Starlings which flock to the reed-beds early in June.

Although Partridges breed near the plantations, we have never detected the remains of them, nor indeed of any game-birds, near the Sparrow Hawk's nest. The plantation is also a great resort of Warblers, Tits, and other small birds, which pursue their daily work unmolested. I strongly believe that neither predatory animals, nor birds of prey, nor Shrikes, rob their immediate neighbours. There is some unwritten law which forbids pillage within the home area. I have seen young foxes and rabbits using the same main entrance to their respective earths, which branch off right and left a little way inside. Day after day I have lain awake out-of-doors after dawn, and watched a family of young Shrikes being fed. Sleep is impossible when these, the rowdiest of all fledglings, are abroad. The lawn at that hour always had a fair sprinkling of small birds bathing in morning dew; and one would have thought that, under the circumstances, tiny Goldcrests at any rate indulged in this pastime at a risk of their lives. But the old Shrikes flew away over the garden to the hedges and woods that bounded it, and I never saw them stoop at the birds close at hand. In fact they were of some benefit to the feathered inhabitants in general, because if a prowling cat

appeared, the old Shrikes attacked it and drove it away, their principal weapons on these occasions being strong language and *élan*.

Some of the most beautiful evolutions of the massed Starlings on Hickling are the direct result of a marauding Sparrow Hawk. Towards the end of the summer and well on into the autumn, there is always one Sparrow Hawk at least which preys upon the vast hordes of Starlings roosting in the reed-beds. It is an easy way of getting a meal. Later on, when the bulk of Starlings has passed on, the Sparrow Hawks frequent the copses near the edges of the Broad. During the winter of 1922-23 numbers of Blackbirds resorted to these at dusk, and about the time I lit my lamp for tea a Sparrow Hawk used to cause a great commotion amongst the Blackbirds. That winter the hedges were simply stuffed with Fieldfares and Redwings—another fruitful source of food supply. Late in the afternoon but before dusk one big oak tree used to be trimmed all over with brown Linnets, especially during February and early March. The rippling sound of their combined evensong would suddenly rise to shrieks of terror as a Sparrow Hawk stooped and took toll of their numbers. One unfortunate Linnet would be borne away in the marauder's talons, but in a few moments the flock reassembled and continued its soft twittering. I suppose that when birds mass together as Thrushes, Starlings, and Finches do at dusk, each bird thinks *it* will escape and that the other bird will be taken!

Sparrow Hawks seldom seem to wander far from their nesting haunts. During October and November one may see five or six during the day all steadily flying across the Broad, due west. But these are immigrants seeking quarters elsewhere. The young home-bred birds are driven off as soon as they can fend for themselves. The plantations round about Hickling are neither numerous nor extensive, and apparently each one cannot support more than one pair of breeding Sparrow Hawks. There is not the unlimited source of food supply available during the nesting season that exists later on throughout the autumn and winter.

I should like to emphasize the fact that details of the food given to the young Sparrow Hawks apply only to the one particular nest which I photographed—the only nest that I have ever had under close observation for any length of time. The Sparrow Hawk is better known to me out of the nesting season, when, like the cunning and resourceful marauder that he is, he suddenly descends like a bolt from the blue into the midst of some unwary group of small birds. When it is about to attack a large flock of birds like the battalions of Starlings which come in at sunset, the Sparrow Hawk cares very little whether it is visible or not. But during the breeding season, or when it is hunting in a neighbourhood that is sparsely populated with small birds, it uses all the cover available; and then, at the right moment, it rises and stoops at its quarry.

I am still occasionally asked if the Cuckoo does not turn into a Hawk in the winter! In these days of many textbooks on birds, such a question is quite unpardonable. The Cuckoo and the Sparrow Hawk are not unlike on the wing, and the barred plumage of both birds is similar. The fact that Sparrow Hawks are often more in evidence during the winter months may perhaps partly account for this mistaken idea. The casual observer, who is only conscious of the Cuckoo as a spring arrival, sees a bird akin to the Cuckoo in general coloration and leaps to a wrong conclusion.

XVI THE KESTREL

FALCO TINNUNCULUS, Linn.

THE Kestrel is essentially a bird of the marshes, and a lover of wide spaces. It needs all heaven for its wanderings and the sun and the wind for its play-fellows. It is a resident bird, and was formerly plentifully distributed over the whole Broadland area. At one time it was not possible to wander about the marshes, or to glide along any of the waterways without seeing one, at least, of these beautiful Hawks hanging in the wind or soaring upwards on apparently motionless wings, ever alert and watchful, able to detect from a considerable height the movements of a small rodent in the grass beneath. But of late years the Kestrel has decreased in numbers.

During the autumn, overseas immigrants arrive on the East Coast, sometimes in numbers; but comparatively few winter in the Broadland. The home-bred birds keep near their own nesting sites, or rather within their breeding areas, throughout the winter. There are a few more Kestrels about the marshes between October and February, but the increase is slight.

The shrill but not unmusical breeding-cry of the Kestrel is heard at the beginning of February, and I have heard it even in January. The old birds (which in all probability pair for life) are then seen hovering round their nesting places, as if guarding them; they begin to set up house-keeping about the first week in May. The Kestrel builds no nest of its own, but utilizes old nests of the Wood Pigeon, Sparrow Hawk, and Long-eared Owl. Favourite nesting places are the old half-ruined windmills now, alas, so numerous in the Broadland—decrepit giants whose gaunt arms stretch forth in vain appeal to a picturesque and vanishing past. Ruined towers, hollow trees, and churches are also favourite nesting haunts of the Kestrel. I know of at least two church towers in which they have been allowed to rear broods for many years in succession, for the Kestrel is very faithful to the old nest. Though trees are not so frequently resorted to as old buildings in the Hickling area, yet there are two or three not far from my boat in which Kestrels generally nest. I have seen the young fed by both parents on mice and birds. When birds are brought, they are beheaded and carefully plucked before being considered fit food for the very young nestlings. As far as my own experience goes, the proportion of birds brought to the nest is small, compared with the number of field-voles requisitioned. When the parents come with food, the whole brood sometimes screams in chorus, but the old birds chatter to them in soft musical tones, and the harsh notes of the young become subdued, or else lapse into silence, as each one clusters round the parent awaiting its turn to be fed.

There is one disused windmill near Hickling in which Kestrels nest, where the behaviour of the adult birds, when they bring food to the young, is interesting. You may see them flying at a fair height over the meadows; but as soon as they get near the windmill, they drop almost to the ground, pause for an instant or two, and then rise vertically to the nest which is high up, keeping their bodies as close as possible

to the wall of the mill. This seems to be a cunning ruse on the part of the old birds to escape detection; or, rather, to conceal the exact site of the nursery. But when leaving the nest they fly straight away, which shows that their intelligence is somewhat limited.

Like young Sparrow Hawks, nestling Kestrels are fed at first on tiny shreds of flesh. If the meal consists of a mouse, the flesh and not the fur is given; if a bird course is served, breast of fowl only is considered fit for their tender youth. But after ten days or so the carcasses are left for the little Hawks to play with and fight over, but they do not really feed themselves till nearly a month old. When two months old, and therefore fairly strong on the wing, they still use the nursery as a dining-room, but not to the same extent that Sparrow Hawks do; for the Kestrel frequently feeds on the ground, preferably on the dyke banks.

The nestling Kestrels are covered with white down, and when several are huddled together asleep they look like one large fluffy ball. When awake, their dark flashing eyes contrast vividly with their general air of innocent softness. The nestling down soon begins to give place to the ruddy plumage; when half in down and half in feather the nestlings are very pretty, but present a curiously aged appearance which is rather entrancing. They take about six weeks to feather completely. When three weeks old, they begin to investigate their surroundings and enlarge their horizon. If the nursery is in a hollow tree they scramble on to the near branches and play at tug-of-war with twigs. Sometimes they quarrel and grasp each other by one foot, interlocking the claws in such a way as to necessitate a fall for one or the other of the wrestlers. Such falls are sometimes fatal; young Kestrels have never heard of Dr. Watts, or doubtless they would behave differently. When alarmed they scuttle back into the hole, or try to hide in the ivy which generally surrounds decayed trees. If reared in buildings, the youngsters walk along the supporting beams or stone-work. Here they quarrel, scream, fight-and-make-it-up-again, several times a day with comparative safety—unless there is no floor.

If molested, the latent fierceness of the Hawk is quickly roused; for when only a few days old the little Kestrels will show fight, throwing themselves on their back and striking out with their feet. They are, however, more easily tamed than any other Hawks, if taken in hand early enough.

Young Kestrels keep with their parents until the end of August and sometimes well on into September. They hunt in family parties. I have seen as many as seven hovering in line together; apparently, the five young were being given final instructions in the art of living before being driven out into the world to fend for themselves.

A hovering Kestrel is at all times a beautiful sight, for he is a past-master in air-craft. To see him in perfection one should be on the Downland, where the bird can be viewed from above, and if possible in the glow of an August afternoon. Then the ruddy back of the Windhover is turned to fire as he hangs in the air head to wind, maintaining his stationary position by the marvellous rapidity of the wing strokes and the constant expansion of the tail-feathers. After a few minutes of this strenuous exertion, the bird seems to be lifted gently by the wind and drifted elsewhere. So he hovers and drifts till suddenly he becomes tense as a string bow and shoots downwards with arrow-like rapidity upon his quarry, recovering immediately if he scores a miss; then gliding upwards with little or no exertion he resumes his position in mid air. When these manœuvres are repeated by several Windhovers together, young and old—the latter perfect in their art, and the former varying in the degree of efficiency

attained—then the bird lover sees a sight that he is not likely to forget. When it is hovering, the Kestrel makes great use of the spurious wing. This is suddenly expanded for a few seconds; generally, as far as I can see, when the bird “banks” as the result of a gust of wind.

In the Marshland one must be content to watch the Kestrel from beneath. This view has its advantages, for there is something that is peculiarly fascinating about the quick nervous movements of the strong yellow legs and feet. Often the legs are dangled and the claws alternately flexed and relaxed, as if they were being kept supple for the final swoop.

I only once had an opportunity of photographing the Kestrel, and then, owing to the situation of the nest and the position of my camera, I could see nothing but the sky, and had no means of knowing whether the bird was near until she dropped from the heavens on to a ledge.

In June, 1906, five young Kestrels were hatched on the window-ledge of the top-most storey of the old ruined tower of Bastwick, near Potter Heigham Bridge. A screen was erected for me inside the tower, and under this I hid myself and the camera. Although the screen had been up for some days, the Kestrels were shy of it, and as at that time I had no silent shutter, my noisy focal-plane scared the birds still more.

I went to them on the 23rd; there were then only three young birds in the nest, for the parents had removed two to a ledge lower down. This was annoying, for when the old bird's attentions are divided between two sets of young, one or the other is sure to fare badly, and the photographer fares worse. However, an hour only elapsed before the female Kestrel returned, bringing a mouse in her claws. Three-quarters of an hour later she came back with a bird about the size of a Thrush in her beak, but as the victim was “dressed” for the table I could not identify it. She fed the young until the whole of the breast had been given; this took about five minutes, for though only tiny shreds were administered, they were doled out rapidly. I then dropped the shutter, and she fled screaming.

About an hour later I heard a curious scratching noise, and saw that the Kestrel, instead of alighting on the window-ledge, was climbing hand over hand up the stonework, till gradually her head and shoulders appeared. A mouse grasped by its neck dangled pathetically from her beak. She paused for a few seconds, a curious picture of indecision and vague alarm. I dropped the shutter, and she disappeared; but almost before I could change my plate, she soared upwards and swooped down on to the ledge, and I let her feed the young in peace.

The next day I was ready for her at 8.30 a.m., but she did not come near till noon. This time a bird was brought, and as usual it was plucked, beheaded, and minus its wings. She fed the nestlings in the same dainty manner as before, but suddenly took fright and flew off, leaving the carcass, so I continued the feeding of the babes. She came at 2 p.m. with a mouse, and at 3.30 a bird was brought; after that I went away. My next visit was at 4.30 p.m. on the 28th, by which time I hoped her shyness would have worn off. My intention was to creep up into the tower after dark and stay there all night in order to get the old bird brooding if possible after dawn. But on reaching the farm I learnt that at 6 a.m. there were only two young in the nest, and as they seemed half-dead the farmer had taken them indoors and revived them. Later on in the morning, however, the female returned and fed the two little ones. At 3.30 it was raining and blowing hard, the young were again half-dead, so I took them into the kitchen and kept them warmed and fed till 4.30 a.m. I then replaced them in the nest and awaited results. About 5 a.m. the female Kestrel returned and fed them;

she also came again at 9 o'clock. Rain fell in torrents after that, and as the old bird did not return the nestlings began to look very unhappy. While I was wondering what would be the best thing to do with them, nerves decided it. The wind howled dismally; great gusts shook the tower, and whistled through the windows. The rain trickled in everywhere, and made little runnels across the floor. While mechanically tracing one of these along its course my eyes lighted on a Tate's Cube box which deflected the stream. The box was in a dark corner and filled with grinning skulls—human skulls and bones of sorts. I had lived with these skulls for several days and not minded them; but suddenly I was seized with wild, unreasoning panic, and, throwing aside my screen, I grasped the bedraggled little Kestrels and fled down the rickety ladders to the warmth and comfort of the farmhouse kitchen. Bastwick Tower is all that remains of an ancient church, but when or how destroyed I have been unable to discover; the bones came from the old graveyard which has long been under the plough. The tower has undergone some slight repairs since 1906, and the tower floor is sometimes used as a tea-room by visitors. The bones have, I believe, been decently interred.

I kept the young Kestrels, and they soon became very tame. They lived on the island for a time, watched over, when on the ground, by my terrier Dinah, who always considered it her duty to "mother" any creature belonging to me, or in which I took an interest. They afterwards lived with my Short-eared Owls—peaceably on the whole—but the Owls took life less seriously than did the Kestrels and occasionally delighted in teasing them. In captivity they were fed on dead mice, sparrows, or raw meat. If food was thrown up into the air, the Kestrels swooped down, struck at and caught it with one foot.

The scream of the Kestrel is loud and startling, but it has, in addition, a rippling musical call which is used throughout the breeding season. My captive birds often greeted me with this cry, and had a charming way of alighting on my arm and looking up enquiringly into my face while repeating the call.

Kestrels are not persecuted on the marshes, for their utility is recognized—"Ma'ash Cats" is the local name for them, because of the number of mice they destroy. In the game-preserving districts they are ruthlessly slaughtered (unless protected by intelligent landowners) with or without evidence of their evil-doing. Of course if a Kestrel does become demoralized, and develops a taste for game, as is undoubtedly the case sometimes, then he is hopeless; but so useful a bird might at least be given the benefit of the doubt. In addition to small birds and mice they feed upon cock-chafers, beetles, and other insects. I could never persuade my captive Kestrels to eat moles—in fact, no bird in my aviary ever could be induced to feed upon that animal.

In watching Kestrels on the marshes one is immensely struck with the fact that birds work very hard for their living. How seldom are they ever seen actually to catch their prey, although practically spending all day in the endeavour.

One of the finest air-fights I ever witnessed was a scrap between a Buzzard, a Peregrine, and two Ravens over a Stock Dove. The victim escaped owing to the outbreak of hostilities between the combatants. But that was in the hill country.

I once saw a fight between a Kestrel and a Rook on Horsey Mere; I do not know what gave rise to the quarrel, but when half-way across the mere they came to grips and both nearly plunged into the water together. The near prospect of a cold bath seemed to quench the fires of their wrath, at any rate the Rook showed no further desire to renew the combat, and so the Kestrel flew away to his own domain near Deep Dyke.

XVII

THE BLACK-HEADED GULL

LARUS RIDIBUNDUS, Linn.

THERE are few prettier sights than that of a big colony of Black-headed Gulls. It is always a busy and animated scene, even when the birds are brooding peacefully. If you invade their nesting area you are at once enveloped in a cloud of whirling white birds, and their united protestations are at times absolutely deafening. When in full breeding plumage, the chocolate brown head contrasts admirably with the grey mantle and gleaming white body. It is lighter in build, and more graceful than any of the other Gulls which breed with us. At times, the Black-headed Gull is so Tern-like in its movements, that it might almost be a missing link between the two families. It is well known to Londoners, as of late years it has become very numerous in the Parks and on the river banks. During the winter it lacks the brown hood, and is often not recognized as the Black-headed Gull. Its common name is a bit misleading, and so is its Latin designation. I have never been able to understand why it should be called *ridibundus*, as there really is nothing suggestive of laughter in its cries. Too often they suggest perfervid remarks, which are the reverse of amusement, and far from complimentary. However, there is no doubt that the Gulls themselves call up most pleasurable feelings in the onlooker; for a colony of Black-headed Gulls, whether it be large or small, is unspeakably beautiful.

During the early spring of 1914 I had a hiding tent on the banks of the River Tay, in Perthshire. There were a number of Black-headed Gulls playing by the water's edge all day long. They indulged in various games of a more or less noisy nature, and suited to the temperament of the Black-headed Gull. These games took place generally while the birds were bathing, and reminded me very much of a party of cheerful boys indulging in a water frolic. On sunny April days little parties met in unfrequented backwaters in order to splash and shriek together. Sometimes they dashed at each other with lowered heads, and shook drops of water from their wings at one another. Now and again one would hover over a Gull that was gracefully poised on the water; the hovering Gull hung over the floating Gull, holding a bit of dead grass in its bill. Whether or not this was a direct invitation from the male to the female to set up joint house-keeping, I cannot say; it is a pose common to many species during courtship. One day I saw a mature Black-headed Gull offer a strand of grass to an immature bird—a bird of the year. This one immature Gull was constantly bathing with six or eight adults in a certain pool.

In the Broadland there are several colonies of the Black-headed Gull. Formerly they nested in great numbers at Horsey; the colony was said to have extended over three hundred acres. The modern visitor to Horsey, having moored his boat either at the Staithe or up the new cut, may now walk dry shod over grazing meadows, which at the beginning of the nineteenth century were unreclaimed and almost un-

approachable marshes. It seems almost impossible to imagine that peaceful stretch of grazing land as formerly the site of the most extensive gullery in Norfolk. It is only the ceaseless vigilance of man that prevents the whole of that great area from reverting to swamp. The sea like some raging hungry wild beast is constantly fretting and striving to break down the frail sand barriers which confine it. When forced to leave Horsey, the Gulls split up into sections and formed colonies elsewhere. One band took possession of Rollesby Broad until ousted from that locality by the erection of the Yarmouth water works pumping station. In 1854 thirty pairs or so established themselves at Hoveton Great Broad, and gradually this colony became the largest in the Broadland. But the Hoveton Gullery has been, and still is, subject to many vicissitudes. One year, owing to the depredations of rats, the Gulls left the Great Broad and established a colony on the Little Broad, one and a half miles away. During recent years they have shifted from one Broad to another several times. They nest sparingly also on some of the smaller Broads, and at one time tried to set up a colony at Hickling. About thirty years ago there were twenty nests on the Swimcotes side on Hickling, but latterly no attempt has been made to breed.

In 1922 I visited a small colony of Black-headed Gulls which were nesting on a very lovely and secluded little Broad called Alder Fen, or "Oliver" Broad. I counted upwards of seventy nests; most of the eggs were chipping, and some had already hatched. In less than a fortnight the Gulls forsook this Broad, because all the young had been destroyed by otters. They have bred intermittently on this little Broad for many years.

The Hoveton Broad Colony of Black-headed Gulls was the first one I ever visited; that was in May, 1904; it then consisted of about two thousand birds. Shortly afterwards, I think in 1906, the Gulls forsook the neighbourhood altogether. According to the keeper, this was due to successive high tides which caused the "hovers" upon which they nested to drift. In many places, too, these hovers were covered with water. A hover is a detached portion of formerly submerged reed-bed; it may vary in size from a mere tussock to a mass weighing several tons. These floating hovers drift to the shallows and generally remain stationary near the edges of the reed-beds. They are, however, liable to get adrift in a gale and when the water is high. They originally become detached during hot weather and when the water is low. The combined action of sun and water causes the anchoring roots to decay, and the sudden release of marsh gas blows them up. When these hovers first float, marsh gas may be seen bubbling out of them for days. Even some weeks afterwards, if the mass is prodded with a stick, gas will be liberated, and may be lighted with a match inserted in a hollow reed stalk. Their sudden emergence is astonishing at times. I sailed out of my bay one morning in August, 1913, and on my return two hours later, an entire corner of reed-bed close to my houseboat had risen. It was sufficiently firm to stand on, and eventually part of it came in very usefully to stop a gap in the reeds elsewhere.

These hovers are often a serious annoyance to yachtsmen, as they drift into the channels and impede navigation. They form a nucleus for further vegetable growth, and thus largely assist in choking up the waterways. They are, of course, very useful to many birds, as the fibrous roots soon form suitable nesting areas, as well as dressing places. A few hours after the hover had risen in my bay, Coots and Moor-hens were sitting round its edge, preening themselves in the sunshine.

For Black-headed Gulls these floating platforms make ideal nesting places. When,

however, they are of several years' standing, they become attached to the main reed-beds, and are therefore liable to submergence during high tides. Apparently this is what occurred at Hoveton in 1905. But in 1912 a few pairs of Black-headed Gulls returned to their old haunt. In 1913 the number of nests was estimated at three hundred.* In 1914 the colony had again dwindled to "a very few pairs." This sudden decrease is said to have been owing to the depredations of otters which killed some of the old birds on their nests.† Up to the present year, 1923, Black-headed Gulls still nest there in varying numbers.

The Hoveton nests are only accessible by boat. On some of the hovers they are so close together that the edges almost overlap. Single nests on isolated tussocks are, however, frequently found.

When first I photographed the Black-headed Gull I was new to the work and hitherto not much acquainted with colonies of birds, for most of my life had been spent amidst woodland surroundings. There, except the garrulous Rooks, the birds usually conduct themselves in a sedate and seemly, not to say furtive, manner. When lying hidden in a punt amidst the Black-headed Gulls the whole community came and mobbed me. The clamour was disconcerting and made me feel apologetic. As the birds swooped past, the wind from their wings fanned the litter with which I was lightly covered, and carried away some of it. In my ignorance of the ways of angry Gulls, I felt at first that those two thousand odd beaks would bury themselves in my skull. However, this display of "frightfulness" was mere noise, and soon subsided. It was, of course, repeated every time I changed a plate, as this could not be done in such a cramped position without some stir on my part. After exposing three plates, the blind-cord of my focal plane shutter broke, and so prevented me from taking any more photographs. As I had asked to be left there for four hours, the rest of my time was spent in watching the various family feuds. These at times rose high, for communism does not necessarily engender a spirit of loving toleration—far from it.

The old birds fought each other, and trampled on the unheeding young if the latter happened to cross the warpath. Some of the nestlings collected in little groups and gaped at their elders with wide-eyed astonishment. Others crouched until the particular tempest raging at the moment was over-past. Yet a third section of the youthful community showed philosophic indifference to the sayings and doings of their elders.

Formerly at Hoveton the first clutches were taken for the market. They are very good eating, and doubtless may often be met with under the guise of "Plovers'" eggs. I have now and again accompanied the keeper on his morning round of egg-lifting. It is far more interesting than hunting up eggs in a poultry yard; primarily, of course, because it has to be done in a boat. Inaccessible nests were reached by means of a long pole with a spoon-shaped depression at one end. This implement requires a certain amount of skill in handling, otherwise the eggs come to grief in transit. Naturally the systematic robbery of their nests was not endured without a loud and united protest from the whole colony. The uproar was considerable, while the sky seemed filled with whirling wings and crimson streaks. The Gulls swooped past our heads or hovered above us with their red legs dangling. While hanging in mid-air, the nervous twitching of their legs and feet, as the anxious birds alternately flexed or

* J. H. Gurney, *Zoologist*, May, 1914, p. 169.

† *Ibid.*, April, 1915, p. 13.

relaxed them, produced an extraordinary colour effect. Looking up, one seemed to "see red." No doubt the Gulls did also judging from their cries, as they waited to see whether their eggs were taken or passed over. But after a while the turmoil subsided and the philosophic Gulls soon made the best of things. Before long second clutches were laid and ultimately hatched in peace.

The young show great activity almost from the time of hatching. They can swim when only a few days old and readily take to the water if alarmed. But where the hovers are of some extent, the chicks hide amongst the reeds when pursued.

I once came across a nest built on a rough plank seat about two feet above the ground. The young were only a few hours old, but showed a great desire to escape as I drew near. One unexpectedly tumbled out of the nest and crouched in the grass; the other two ran along the plank vainly trying to summon up courage for the leap. I collected the three, replaced them in the nest, and covered them with my hand until they settled down quietly. As their parents had chosen this select top storey for their upbringing, I did not wish to incur the responsibility of introducing them to the giddy throng of youngsters playing round my feet.

The Black-headed Gull is one of the agriculturist's most useful allies. It may be seen following the plough in great flocks, searching the newly turned sods for wireworms and other grubs. During the winter of 1923 I used to watch for the return of the Black-headed Gulls to Hickling Broad in the late afternoon. During the day they could be seen on the arable lands and in the fields. Sometimes they resorted to feeding grounds near the Broad, but if any ploughing was being done the Gulls were sure to be found diligently following men and horses up and down the furrows. Towards sunset you would see them returning in twos and threes—seldom in big bands; and unless you happened to have watched the sky and seen these small parties coming in, you would be surprised at the number of Black-headed Gulls surrounding you on the water. There was a shallow rand near my boat which they particularly loved. Here in the sunset (and also in the early morning) numbers collected together to paddle in the water, and bathe and preen themselves. Sometimes I could slip round a bunch of reeds and watch them at close quarters; but there was little cover and at the slightest suspicion of danger the whole flock would rise and go elsewhere. So I usually contented myself with watching them through binoculars. They were less gay and light-hearted than the spring companies. Their days had been spent in strenuous hunting for food, and life was altogether a more serious business.

Further out on the Broad numbers of Great Black-backed, Herring and Common Gulls collected in the sunset. The Black-headed Gulls seldom associated with these. It was just as well that they did not, for sometimes the water round the Gulls which had come in from the sea was smooth and turgid with oil, which these unfortunates had brought in on their plumage, and were striving hopelessly to remove.

The Black-headed Gull does not do the amount of damage to the fishing trade that fisherman think. The following analysis of a number of dissections recently issued by the Suffolk and Essex Fishery Board speaks for itself:

	Per Cent.
<i>Fish of all varieties present in :</i>	28
Fish useful as human food	13.5
Fish useless as human food	14.5



BLACK-HEADED GULLS RETURNING TO THEIR NESTS.



THE COCK TREE SPARROW.

THE BLACK-HEADED GULL

99

Marine food other than fish :

Per Cent.

Shrimps (<i>Pandalus</i> and <i>C. vulgaris</i>)	27
Lugworms (<i>Arenicola marina</i>)	7·6
Ragworms (<i>Polychætæ</i>)	6·7
Molluscs	4·8
Small Crustaceæ	8·5
Crabs (various shore crabs)	7·7

Land food :

[illegible]

XVIII

THE TREE SPARROW

PASSER MONTANUS (Linn.).

AS a breeding species the Tree Sparrow is abundant locally in the Broadland, but its numbers fluctuate. In some of its haunts there has been a marked decrease during recent years, and a decided increase in others.

Though found most frequently near human habitations, it is nevertheless shy and retiring, and never aggressively familiar like the House Sparrow. It may often be seen on the roofs of buildings and in the trees and hedgerows, but it seldom hops about the roads. The Tree Sparrow dislikes being watched, and soon makes for cover if caught in the open, especially during the breeding season.

The sexes are alike, and therefore it is not easy to differentiate between the actions of the male and female. I have seen both birds building the nest, and frequently watched them feeding their young. As a species it is very silent during the nesting time, and seldom utters a sound while tending the nestlings. It shows no outward sign of resentment, and is not abusive when intruders pry into its domestic concerns. The Tree Sparrow's note often uttered on the wing is not so shrill as that of the House Sparrow, nor is the bird itself as garrulous. For the most part it is of a peaceable disposition and minds its own business—qualities which are lacking in its truculent cousin.

Whether the male incubates or not I cannot say, but when the nestlings are first hatched both parents feed and brood alternately during the first three or four days.

The Tree Sparrow's love-making is not thrust upon the notice of a willing or unwilling observer as is the case with his more vulgar cousin, but is carried out in quiet corners and secluded byways. The male has no specially dazzling attractions either of form or colour with which to entangle the female mind—nothing in fact that the hen herself does not possess. Perhaps this may account for the absence of any striking display on the part of the cock when wooing. But the Tree Sparrow's colouring, though restrained, is rich and handsome when seen at close quarters, and the bird has a decidedly smart appearance. It is graceful in form and alert in carriage, while the brown cap, white collar, and barred wings lend it a certain air of distinction. The male makes use of all these points when courting. The head is thrown back and the feathers of the neck and cheek distended, so that the white and black patches seem to stand out in still greater relief. The head is often twisted from side to side and the bill opened wide. Occasionally some sound is produced—a faint chirp perhaps—but for the most part the lover seems unable to voice his emotions. The brown cap is alternately raised and depressed, while the wings are expanded and rapidly vibrated so that the double white bar becomes prominent; or he may trail his wings along the ground and sidle up to the hen with a deprecating air. There is nothing extraordinary in his display, but if the hen understands and is satisfied it does not matter what onlookers think about the performance.

I have generally found the nest in holes in the old pollard willows bordering the

ditches; also in holes in the roofs of houses (whether thatched or otherwise), or in loose walls, and sometimes in stacks of brick and tiles—in fact, any convenient hole may be utilized. The nest is made of straw, dry grass, or fine roots, and lined with feathers—quantities of feathers are sometimes used. As a rule it is fairly tidy, but this depends largely on the space to be filled. The eggs are generally laid in May, seldom earlier in the Broadland, and may vary from four to six in number. In all the clutches I have seen there have been two eggs much lighter in colour than the rest. Two broods are generally reared in the season—rarely three.

The Tree Sparrows in the illustration fed their young on small green caterpillars, flies, and spiders. Food was brought alternately by the cock and the hen almost every ten minutes. Whichever bird came, it alighted on a branch above the nesting hole and called to its mate who immediately darted straight out of the hole, then the one with supplies flew to the edge, slipped in and brooded. One bird, which I took to be the male because of his smarter appearance, generally brought the flies and spiders; while the other, presumably the hen on account of her frayed plumage, brought most of the larvæ. Apparently the cock took upon himself the arduous duty of catching the more elusive prey. As the nesting hole was in an apple tree surrounded by spring cabbages, caterpillars were numerous. The young were hatched on May 27, and they remained about eighteen days in the nest; for like most young birds reared in holes, they do not leave the nursery until able to fly fairly well. In consequence of this prolonged infancy, a large number of larvæ are devoured by one hungry brood of Tree Sparrows before they fly.

I was once lecturing to a drawing-room audience and roughly calculating the number of caterpillars which might be destroyed by one family of birds during the nesting season. In the discussion which followed, one woman heckled me considerably, and in such a manner that, had it not been a private audience, I should have tried to crush her. Finally, she asked me in withering tones, "How much proteid is there in a caterpillar?" I was nonplussed for the moment, and then replied that "it depended on the size of the caterpillar." Here my hostess intervened and put an end to the discussion.

I really do not know how much size has to do with the staying, or building up power, of a caterpillar diet. Sometimes one youngster in a brood will be given a single larva, one and a half inches in length, and large in proportion. I always keep a sharp eye on the bird thus favoured, but when feeding time comes again, perhaps five, or it may be ten, minutes later, he will open wide his gape just as eagerly as his brethren who have only been given joints one-fourth the size! Occasionally, the parents seem to discriminate and pass him by, but for the most part he shares equally in the next round. I only once saw an old bird deliberately knock down a really greedy and pushful youngster. This was a Nuthatch, which had several times in succession elbowed its weaker brethren out of the way and taken their share. The mother eventually pecked it on the head, and it fell back ignominiously into the nesting hole.

The adult Tree Sparrows devour numbers of insects and larvæ during the summer and also during the winter. This may, to some extent, account for their local distribution generally, and for their partiality for the Marshlands. After the breeding season Tree Sparrows become gregarious and roam about in flocks, visiting the fields and stackyards. Although a few may often be noted amongst a flock of House Sparrows during the winter months, yet if there are numbers of Tree Sparrows in any

given area, they keep together, and roost together. Sometimes they roost in the nesting holes. I think that the home-bred Sparrows do this to a great extent, as they seldom wander far from their nesting areas.

In the autumn and winter the numbers of resident Tree Sparrows are augmented by the swarms of immigrants which arrive on the East Coast during September and October—occasionally also during January—and leave again in March or April. Some of these overseas birds may stay, but the bulk pass on. I have seen flocks of from fifty to two hundred new arrivals which frequent certain fields or hedgerows for a few days and then disappear. Later on fresh batches come in and also pass on. The occasional influx of Tree Sparrows in January may merely be the result of some inland migrations, either of our home-bred birds seeking a more southerly retreat or of immigrants which had hitherto passed the winter in more northerly counties also gradually journeying further south. As a rule these New Year migrants are the precursors of bad weather, or else they follow in the wake of strong north or north-easterly gales. In 1912 the Light stations on the East Coast recorded a southerly movement of Tree Sparrows which was continuous throughout October. Occasionally flocks were also seen coasting north, while between Yarmouth and the Thames birds were migrating by day in some westerly direction. On December 5, 1912, flocks were again observed on the Suffolk coast moving south, and others going west.

When on migration the Tree Sparrow throws aside its habitual reserve and general air of decorum, for Dr. Eagle Clarke states that when he was on the Kentish Knock Lightship "This species came on board more frequently than any other, and displayed many of the traits characteristic of its commoner cousin, being very noisy and having the knack of making itself at home even at sea. When aboard, during high winds and heavy rains, the birds used to hustle each other in the scramble for the most sheltered places in the rigging and on the lee-side of the lantern, and showed much pugnacity."*

There is no doubt that travel has a demoralizing effect on some normally quite nice natures. It may be, however, a matter of life or death to the Tree Sparrows, this perch on the "lee-side of the lantern." Have they not fought their way unaided across the ocean, "Hurling defiance at Vast Death," blindly following the mysterious impulse which compels them to migrate? Small wonder then that when there is the chance of a rest they push and scramble for the best places.

* *Studies in Bird Migration*, vol. ii., p. 34.

XIX THE KINGFISHER

ALCEDO ISPIDA, Linn.

ALTHOUGH resident on many of the Broads, the Kingfisher seldom visits Hickling until the autumn. My first intimation of its presence is a series of dull thuds overhead, which rouse me in the early morning. I know then that the master fisherman is moving towards the coast, and paying me a visit because the bay abounds in small fish and suitable posts from which the Kingfisher can dart after his prey. Sometimes two or three birds will frequent the bay for some days. They may arrive in August, but as a rule I do not expect them till about September 16. Now and again a single bird will remain on Hickling Broad or in its vicinity all the winter. This was the case in 1922. During that winter, my houseboat was moved near the Pleasure Boat Inn. A Kingfisher frequented the dyke, and often fished from my roof, from October, 1922, until February 6, 1923. But most of the autumn visitors pass on; many of these work up the East Coast, and in some places, where nets are stretched across the sands to entangle wild fowl, Kingfishers occasionally get caught as well. The mesh of these nets is about four inches square, but stretched diagonally so that it is just too small for the Kingfishers to dart through. The shore-shooters tell me that they get a shilling apiece for the skins.

In France the Kingfisher is called *Martin-pêcheur*, or *Oiseau de Saint Martin*, no doubt because of its movements along the shore about Martinmas. I have never seen any return migration in the spring.* Probably the autumn migrants are driven from home by the adults and have to find nesting areas elsewhere, for the Kingfisher is very jealous of intrusion into his domain, and his fishing rights seem to be very strictly preserved. The fact that there are no banks round Hickling Broad may account for the lack of nesting Kingfishers in this area. Nevertheless, I am always glad that the birds deign to visit it in the autumn, because one cannot be awakened to a more beautiful sight than that of a Kingfisher poised on a branch in the golden dawn of a September morning, wholly unconscious of an observer who is only twelve feet away. As my cabin doors are seldom shut, I have had fine opportunities of watching the fisherman at work. For the most part, he prefers to stand on something solid—the cabin roof, or open window—but he often perches on the slender branches of an alder bush. In spite of his queer little scarlet syndactyle feet, he maintains his balance quite easily, and stands motionless, tense as a strung bow, ready to dart like an arrow after his victim. Usually when darting into the water for a fish, the bird is only partially submerged, but I have seen him go right under, especially after one or two unsuccessful dives. Perhaps the Kingfisher takes this extra plunge because rendered desperate by defeat; his complete submergence is only momentary, as he is unable to pursue his quarry under water. Having captured a fish, he either alights on the stern sheets, or roof of my boat, in order to swallow it. If a tiny fish, it is

* The very day I finished this chapter, April 3, 1923, a Kingfisher alighted on my quay-heading and began to fish. It stayed near me for two days.

at once tossed up, dexterously caught and swallowed head first. If the fish is larger, or has any wriggle left, it is banged on the boat, prior to being readjusted and swallowed, and it is the dull thud of this death-blow which awakes me. The bird then returns to his former lookout on the alder. Four or five tiny fish seem to suffice for a meal, and the time spent in catching these varies from ten to fifteen minutes. Any slight movement on my part would send the keen-eyed fisherman darting off, but after a tour round the bay he always came back, either to the houseboat or else alighted on the many points of vantage within my view—such as the landing-stage, or the stern of one or the other of my little fleet of boats. In 1914 the Kingfisher often perched on a reed-stack while fishing.

When poised motionless, intent, there is something almost unnatural about the Kingfisher. It seems too brilliant to be real, too immobile to be alive—a tiny statue wrought in metal and bedecked with precious stones, while the scarlet feet and bill add the finishing touches of artificiality to its make-up.

In August, 1914, while I was waiting in my tent by a lake-side, a pair of Kingfishers came and fished in front of me. There was no available perch near the water except my tent which they avoided; so these birds fished, as it were, on the wing. They took short flights, returned to a certain spot and hovered in mid-air, then swooped and struck like tiny hawks. I once saw one of them dart into the water and emerge with a fish, and while hovering, dexterously toss up the fish, catch and swallow it. This was one of the cleverest and most brilliant aerial performances I have ever seen, so dazzling in its beauty that I forgot to photograph it, although the camera release was in my hand.

Who would not love to see the Kingfisher go a-courting, and who has ever done so? There is indeed, the swift courtship flight which is accompanied by much noisy whistling; but similar tactics are employed when chasing away a rival. Surely so brilliant a bird must indulge in a more definite display of its beauty. The halcyon of tradition, myth, and folklore, the "little bird that yet hath much honour because of its lovingness," the "preserver of peace and harmony in families," and the very "spirit of good luck,"* has managed to enshroud its own love-making in mystery. In all probability it pairs for life, as both birds may be seen in the vicinity of their breeding haunts all the year round.

Although the most gorgeously coloured of all our native birds, the Kingfisher is stumpy in form, awkward in gait, and outdone in song by the most soberly clad little Warbler. He pays a heavy ransom for his brilliant garments set with sapphire, turquoise, and ruby. What pelting school-boy, angler, or collector, and—alas for woman—what milliner does not covet his beauty and set a price upon his head. So he hides his little family in a cave, and himself darts past, a momentary vision of delight, all too quickly seen and lost. For he has no confidence in man, and only seeks to hide his beauty in some secluded backwater or within the shelter of his cave dwelling. So Nature evens things up.

The Kingfisher is moreover pursued by an unrelenting Nemesis. This King of fisherman in the bird world is himself ruthlessly slaughtered for the sake of certain feathers, which are largely used in the manufacture of artificial flies. What an irony of Fate!

The Kingfisher's nest is at the end of a tunnel which the birds excavate for themselves in any suitable bank—not necessarily, but preferably, near the water. The

* Swainson's *Folk-Lore of Birds*, Folk-Lore Society, 1885, p. 105.



"LONE THE KINGFISHER SITS DREAMING."



"EYES LEFT."



"RIGHT ABOUT."

tunnel is about two feet or more in length and slopes upwards, opening into a small circular chamber. As time goes on, the deposit of fish refuse and bones, which are thrown up by both adults and young in the form of pellets, as well as droppings, makes the nest very offensive. In the Broadland I have never seen a nest bordering on the Broads or rivers, but generally in a disused gravel pit, or near a small pond, or even in banks by the side of a secluded lane. As a rule the river banks are too much frequented and the Broads possess no banks at all. The young, when feathered, are as brilliant in colouring as the adults and, like most nestlings reared in holes, remain in the nest about twenty-one days. Therefore when fledged they can fly fairly well and are better able to take care of themselves than many birds reared in open nests, for the latter often skulk in tangled undergrowth for some days after leaving the nest, and thus fall an easy prey to ground enemies.

When young Kingfishers happen to drop down into rough undergrowth, they are surprisingly difficult to detect, as their brilliant colouring is immediately dulled by sombre surroundings. I have had to search diligently for fledglings under these conditions, for they crouch down and sit quite still. Perhaps it is not merely for the sake of peace and quiet that the Kingfisher nests so often in secluded backwaters, for although fairly strong on the wing the fledglings do not attain full powers of flight without exercise, and they evidently know how to skulk if cornered. The reason why, in spite of their brilliancy, they can efface themselves lies in the fact that there is no blue pigment in any blue feather. This colour in any bird's feather is purely structural, and produced by the angle at which light falls upon microscopic cells in the feather itself. The ground colour of a blue feather is orange or brown, and when held up to the light it presents merely a dull brown appearance. I have often stood near one of my pet Jays when it has been sitting half in shadow. The sunlit wing will be brilliantly azure, while the one shaded from the sun will not show a trace of blue. So, on grey days, especially during the winter, I have seen Kingfishers flying across the Broad ahead of me, and only their shape and manner of flight betrayed them.

When in the nest young Kingfishers can see little or nothing. They hear their parents coming with food, as their approach is often heralded by a shrill note uttered some distance away but near enough for the young to hear. The flight of the Kingfisher is distinctly noisy and easily distinguished even by the concealed photographer from that of other birds. When first fledged their unanimity of movement is most amusing. What one does, they all do; their actions remind one of a company of soldiers at drill. When their attention is fixed, "eyes front," they gently heave up and down, not after the smart and decisive manner of the adult when annoyed, but slowly, seriously, with their heads stretched out, and a bewildered look in their eyes. While I was photographing the six young Kingfishers depicted here, Vincent was walking round the high bank above them. The little company turned slowly and faced him whichever way he moved, halting when he stood still, and opening their beaks as if expecting to be fed.

These young Kingfishers were the second brood. Six out of the seven eggs hatched on June 5, and I first made the nestlings' acquaintance on the 7th. I was horribly oppressed by their hideousness. It would be difficult to imagine anything in the shape of a bird more curiously ugly than these six blind slate-grey squabs, without a particle of down to hide their awkward and ungainly bodies. The nest, which was in a high bank surrounding a deep and dirty cattle pond, had been cleverly

uncovered for me, a false roof inserted, and the sods carefully put back so that it could be examined at intervals. My first impression of the nest was that it consisted of a fair white marble corridor, ending in a cave of the same material. As a matter of fact, it was an extremely offensive dwelling lined with bone dust. But the white walls of the nursery seemed to intensify the ugliness of the young birds. I was quite glad when they were decently and comfortably roofed in and covered over.

The nestlings had not improved in looks a week later, for although the feathers were sprouting, they had not burst their sheaths. By the 17th, however, the birds had attained their full growth, and the partially developed feathers at last gave promise of beauty. Between the 17th and 24th the plumage developed rapidly, and the young Kingfishers were good to look at and to hold in one's hand. Having been subjected to a considerable amount of handling they showed little fear and waddled back to the nesting chamber when returned to the entrance hole. On June 25 they were ready to fly.

I spent a long time photographing them on that day as they arranged themselves on a rail near their home. Sometimes they overbalanced and fell into the water, but this in nowise disconcerted them. They flapped along the surface of the pool half walking in the water, no doubt assisted by their curious feet, the middle and outer toes of which are united as far as the second joint. It seems a feeble and inadequate foot when compared with that of a passerine bird, but is doubtless suited to the Kingfisher's needs. Though not admirably adapted for walking on land, it enabled the young birds to paddle to the bank, which was at least four feet away from the rail. I doubt whether young Kingfishers could battle with any river current, as they seemed exhausted after these efforts, and would crouch quietly in my hand till their spirits had revived. Perhaps this is another reason why the adult bird so often prefers small ponds where there is little water, or disused quarries, for its nesting place; the chances of drowning are reduced to a minimum.

In order to photograph and watch the Kingfishers reproduced here I had a little lean-to shelter placed against the bank opposite the nesting hole, and as far out of the unsavoury pond as possible. My camera tripod had to be fastened to stout stakes which were driven into the muddy water about six feet from the nest. This necessitated crossing a plank (also fixed up for me) every time I wanted to change a plate, exposures being made by means of a twenty foot rubber tubing.

The pond was separated from a very beautiful and secluded Broad by a narrow belt of woodland intersected by ditches. The Kingfishers resorted to the Broad for fish, and when returning nearly always flew up the line of a certain ditch. On emerging from the wood they uttered their harsh cry which served as a warning to me as well as to the nestlings; all of us therefore were at attention! After the tunnel had been opened and closed and all my impedimenta erected, the first bird to return was I believe the female, judging from her frayed feathers. She darted straight into the hole but beat a hasty retreat and perched on a broken sun-lit rail near by. Naturally she showed some indignation, and in her alarm bolted the fish which was intended for the young. She faced my shelter, heaved up and down, erected her head feathers and ruffled up her plumage. However, having satisfied herself that no danger lurked in ambush, she flew into the hole where she remained for some minutes—probably inspecting the alteration—then she came to the entrance, hesitated a little, and finally flew away for more fish. The next time she returned she stayed in the hole, and the subsequent feeding was done by the male. During the following two

or three days he continued feeding the young, and probably his mate. A fish was brought about every fifteen or twenty minutes.

I spent the greater part of three weeks watching the Kingfishers feeding their young. The shelter and plank had been erected a week before the eggs hatched. Sometimes I cycled the fifteen miles, starting at 5 a.m., staying the night, and returning to Hickling the next evening. But I spent the last week of the three entirely with the birds, and living in the houseboat which had been placed at my disposal.

After the first week both birds fed the young, still at regular intervals of from ten to twenty minutes. Nine times out of ten "miller's thumbs" (*Cottus gobio*) were brought. These were dead by the time the Kingfisher arrived at the nest, and then they were adjusted with their heads towards the birds throat. Other small fry, which I could not determine, were also brought. I did not see anything but fish taken into the nest.

Sometimes the birds dashed straight into the tunnel, but as a rule they alighted on the broken rail first, then flew to the entrance, and waddled up in most ungainly fashion, but so rapidly that the movement was more akin to the writhing of a reptile than the usual gait of a bird. Except on one occasion the adult Kingfisher always emerged tail first, then turned and darted away. This was accomplished with such speed that the eye could hardly detect the actual moment when the bird turned to take wing. Everything happened in a few seconds. Those sounds which heralded the bird's approach were scarcely heard before the vision of beauty appeared, paused for an instant, and then vanished; afterwards there remained only the dark muddy pool with its pests of gnats; but these could be endured, because one knew that in a given time the radiant vision would return. Meanwhile, one was left to meditate upon the incongruity of so much beauty surrounded by such squalor.

At the end of each day I returned to the houseboat on the edge of the Broad, dried my wet garments and cooked my meal; then I used to sit out in the beautiful June twilight. Again and again I heard that piercing call-note and the whirr of wings, and caught a momentary glimpse of the jewelled Blue Bird now subdued in colouring, as one or the other flashed past me to their fishing post lower down. It was not until the twilight merged into the short summer night that these journeys ceased, only to begin again soon after dawn. So from 4.30 a.m. till 8.30 p.m., and on one occasion 9 p.m. the busy parents plied to and fro from pond to Broad, in order to satisfy the wants of their little ones. Between 3 and 5 p.m. these journeys were less frequent, and sometimes only the male fed the young during that interval.

In addition to fish, the Kingfisher picks up fresh-water-shrimps and also some few beetles. I frequently saw both young and old cast pellets while they perched near the nest, but as these always fell into the water and disintegrated at once, it was impossible to recover them, as they resolved themselves into a white chalky looking substance.

In hard weather the Kingfisher is sorely pressed for food, as the shallow pools where they obtain most of their supplies are always the first to be frozen; they then resort to the inland dykes, and as these in turn succumb to frost they are driven further and further afield. A Kingfisher was once seen at Smallburgh Rectory, near Hickling, taking suet from the bird table. In snowy weather they are often picked up dead. I was staying at Newbury one January—I think in 1889—when there was a long spell of skating weather. Day after day we picked up dead Kingfishers on the banks of the Kennet and in the adjacent meadow.

No doubt Kingfishers do considerable harm in trout hatcheries, where they are ruthlessly slaughtered, sometimes in a most inhuman manner. Surely something might be done to obviate the remorseless cruelty which Mr. Alfred Taylor shows up in the following paragraph:

"A small trout hatchery near one of the streams in this vicinity is occasionally visited by Kingfishers, but then only in flood time, when minnows are unobtainable in the swollen and discoloured waters of the main rivers. For this indiscretion they are killed without mercy. On a short stump, a point of vantage, a trap is set upon which the unwary birds alight, and in this manner as many as fifteen have been cruelly done for in *a week or two during autumn, and this occurs year after year*.* The keeper of the hatchery even carries his persecutions further than this, and exploring the river-sides blocks up the nest tunnels with stones. In this way, the imprisoned birds are left to die of starvation. I possess a photograph of seven young Kingfishers thus butchered to make an angler's holiday. An appeal to the humanity of anglers would not be out of place; it is for their benefit that this slaughter is committed. Considering the beauty of the bird, its relative scarcity and its comparative harmlessness, this brutality is quite without warrant."†

The italics are my own. As the majority of Kingfishers are caught during the autumn dispersal, they surely might be captured alive and sent to localities where their presence would be welcomed. No doubt this would entail trouble and some extra expense. But the British Public which responded so generously to the experimental scheme for supplying perches for the lighthouses would undoubtedly be willing to contribute. If only a reasonable scheme could be formulated, and one which appealed to the sentiment of bird-lovers, money would at once be forthcoming.

* This method of capture is, of course, illegal. Any trap on a post is a pole-trap. If the attention of the police were called to it, they would be bound to prosecute.

† *Country Life*, 1908, pp. 258-9.

XX

THE BUNTINGS

THE CORN BUNTING (*EMBERIZA CALANDRA*, Linn.).

THE YELLOW BUNTING, OR YELLOW HAMMER. LOCAL NAME: GULER
(*EMBERIZA CITRINELLA*, Linn.).

THE REED BUNTING. LOCAL NAMES: BLACKCAP; BLACK-HEADED BUNTING
(*EMBERIZA SCHOENICLUS*, Linn.).

THE CORN BUNTING

IN the Broadland these three members of the Bunting family are amongst the commonest of the resident birds.

The Reed Bunting is, of course, found chiefly on the marshes by the river bank; the Yellow Bunting frequents the gorse-clad commons and dry banks dividing meadows; while the locally distributed Corn Bunting breeds in numbers on certain of the drier marshes and rough grazing lands.

The Corn Bunting is resident throughout the year, but the little flocks of from twenty to thirty which roam over the marshes during the autumn and winter are augmented by overseas migrants. In September and October numbers of Corn Buntings arrive on the East Coast; some pass on, but many seem to stay. They roost amongst the bushes intergrown with sedges on the wilder and less-frequented marshes near the sea. The term "marsh" is, of course, used here in its wider sense and embraces large tracts of rough ground more or less moist, where the herbage is rank and full of plants which produce seeds for many graminivorous birds throughout the winter.

These flocks of Corn Buntings are much harassed by the female Hen Harriers which occasionally winter in the Broadland. One can tell in which direction this giant foe is working by the numbers of terrified Buntings which fly ahead of the enemy in their frantic efforts to escape capture. These hunts generally take place at sundown, just as the Corn Buntings are retiring to roost. In all probability, a certain number of our home-bred Corn Buntings emigrate in the autumn, but in what proportion it is impossible to say.

After the flocks disintegrate in early spring, the male Corn Buntings are very pugnacious, and spend most of their time singing and challenging each other from the summits of their respective sallow bushes. This truculent behaviour is characteristic of them throughout the breeding season; it is even more marked after they have paired than during the courtship period, and attains its highest pitch when the young are first hatched.

The Corn Bunting is furtive in its love-making and does not seem to indulge in any unusual display. It rushes about in a somewhat ungainly manner when on the ground, shivering its wings at intervals. The most attractive attitude assumed is

when emotion induces it to hurl itself into the air, where it hangs suspended—often only a foot or two above the grass—after the manner of a Skylark, dangling its legs and constantly flexing the toes. This display only lasts a few seconds, after which the bird drops into cover. Occasionally it is repeated several times in succession, when the performer may be quite silent or at intervals give vent to a sharp hissing note.

The Corn Bunting is a heavily built bird, and fighting is the chief rôle of the male, while orthodox domesticity characterizes the female. Although on one large marsh numbers nest in close proximity, yet each male spends almost the whole of the day in jealously guarding his own rather restricted territory. It looks sometimes as if these birds invited aggression on the part of their immediate neighbours. Two will frequently hurl their wheezing song at one another by way of preliminary challenge, then dash from their respective points of vantage, meet midway between their territories, where after shivering a lance or two they return to their posts quite satisfied with themselves for the time being. Whether or not Corn Buntings are really vicious to one another it is hard to say. They never appear seriously to molest each other, and perhaps merely indulge in these mimic combats as an excuse for neglecting their domestic duties.

The female Corn Bunting undoubtedly has rather a hard time of it, for if the males take any share, either in building the nest, incubating, or in feeding the young *before* they are fledged, it must amount to a very small percentage in the long run.

In spite of the fact that the building of the nest devolves upon the hen, she resents any interference with it, and quickly forsakes both nest and eggs if disturbed before the young are hatched. The whole task is laboriously undertaken afresh upon the slightest alarm. This, at least, is my experience after many years of watching. I should not like to say how many days have been spent hunting for nests, nor to count up the weary miles of trudging knee-deep through rank vegetation on hot July days, when the marshes are infested with a peculiarly venomous fly, locally known as the "marsh cuss." This rather handsome fly, with its brilliant and very prominent green eyes, is a species of gadfly (*Chrysops cocciticus*). Year after year my efforts to photograph the Corn Bunting were frustrated. In the first place, the nest is a troublesome one to find on the tangled marshes, and when found invariably came to grief; so that it was not until July 24, 1911, that I eventually succeeded.

The nest is neatly made of grass bents or fine fibrous roots, and lined with finer grasses or hair. It is built close to the ground, and carefully concealed amongst the coarsest of coarse herbage. Sometimes a low sallow bush or straggling bramble will be a guide to its vicinity, as both birds like something to perch on near their nest. But the male's sentry bush is always some distance from the nesting site; he never does anything to give away the home, and will lead you a sorry dance if you happen to mistake him for the female and attempt to stalk him. But the female has a way of hovering over the nest which betrays its whereabouts; like the male in his courting attitude, she hangs in the air flexing her legs and feet before dropping down to the eggs and young.

After the young Corn Buntings are hatched, the hen loses much of her wariness, and is then no trouble to photograph, as her whole mind is occupied with the feeding of a clamorous and sturdy brood of four or, maybe, five youngsters. I doubt whether the male assists in feeding his offspring even during the first day or two of their existence, because after a severe thunderstorm or a heavy downpour of rain, I have



A CORN-BUNTING BRINGS A DAILY IVY BERRY
TO THE NEST.



A YELLOW BUNTING HAS HIS SUSPICION
AROUSSED.



THE MALE REED-BUNTING



—AND HIS MORE SOBERLY CLAD MATE.

several times found the newly hatched young drowned in the nest. The females of most species brood continuously during the extreme infancy of their young, while the cocks feed both. But the Corn Bunting does not appear to interest himself in his little ones until they are fledged, when he takes on their higher education and also forages for them. Young Corn Buntings feather and grow very rapidly and will scuttle out of the nest after the eighth day, if disturbed. They are then ungainly and awkward squabs, with abnormally long and strong pink legs.

One day, when I timed the hen while feeding her brood, she fed them five times between 9 and 9.30 a.m. principally upon small green caterpillars; between 9.30 and 10 she fed them four times, and after that food was brought every five minutes. This diet was varied occasionally with small white larvæ, and male demoiselle dragon-flies. Why invariably males I don't know, unless their brilliant blue coat of mail proves their destruction. About twice a day ivy berries were administered. I have seen Thrushes and Blackbirds feed their nestlings with these berries, but never more than twice during the day. It would seem as if this fruit must possess some virtue which, in small doses, is good for nestlings.

The female Corn Bunting's voice does not seem capable of much inflexion; the note uttered when approaching the young was akin to the Skylark's call-note. Now and again she stood in front of the nest apparently listening to her mate as he sang his grasshopper-like song from his observation post. Sometimes six or eight Corn Buntings would call to each other in rapid succession. Their song is not musical, but I never hear it anywhere without recalling days of unclouded July sky, shimmering marshlands, and the hum of insect life—persistent insect life too! As by the beginning of July most of the smaller songsters are comparatively silent, these noisy cavaliers dominate certain areas of the Broadland; but even the Corn Bunting is less vehement as August advances.

The joyous and irresponsible male Corn Bunting's life is not all comedy. One day, while I was leaning against a gate-post watching several of these birds tilting, there came a sudden overshadowing in the hitherto cloudless sky. Tragedy threatened, for on looking up I saw a Montagu's Harrier hovering with outstretched wings over a thorn bush, on the topmost twig of which a Corn Bunting stood shouting defiance. The moment the shadow became stationary, the song ended abruptly in a shriek; there was a sudden whirr of wings, and the quarry eluded his giant pursuer by a rapid twist and a shoot upwards. Before his powerful adversary could recover and strike again, the Corn Bunting dropped into the midst of the bush and remained concealed till the danger was over. The disappointed Harrier beat about the bush for a time, then sailed away in quest of other game. I have never seen a Corn Bunting move with such alacrity, for usually its flight is slow and heavy.

In more or less civilized districts Corn Buntings seem far from shy, for when perching on telegraph wires by the roadside they often allow one to approach and hold converse with them; but in the Broadland they are wilder than in any other locality with which I am familiar. In the Downland they are easy of access, also in Wales and Scotland. In North Uist they were as ubiquitous as the House Sparrow which they to a certain extent replaced, and are indeed called "Sparrows" in the Hebrides. One afternoon during an all-enveloping Hebridean mist I saw the small tree in the Balranald garden absolutely covered with Corn Buntings; there must have been two hundred at least, all seeking shelter behind the enclosing wall. This was apparently no unusual sight during bad weather.

In the tall Cambridgeshire hedgerows I have seen numbers of Corn Buntings, on a winter's afternoon, retiring to roost with Sparrows and other Finches. For the most part, the Corn Buntings keep together in a bunch, but if disturbed they fly out of their hiding-place, and mix in with the other flocks of birds.

The unexplained problem in the life of the Corn Bunting is—why, being largely a resident bird in many of its breeding areas, it should nest so late in the season. In the Broadland marshes, the first broods of most small birds are fledged before the Corn Buntings' eggs are laid. It probably owes its name to this habit of late breeding, as nests are frequently cut out during harvest. The name Common Bunting often applied to this species is a misnomer, for though abundant locally, it is not the commonest of the Buntings, nor the most widely distributed. Its habitat is open country, whether cultivated or uncultivated.

THE YELLOW BUNTING, OR YELLOW HAMMER

At Hickling, none of the native boys know what you mean if you ask them to find you a Yellow Hammer's nest. To them this bird is only known as the Guler, pronounced "Gooler"—a name which is probably derived from the Danish "guul," meaning yellow. As so many place-names in the Broadland are Danish it is pleasant to think that centuries ago the little fair-haired sons of the Vikings hunted for the yellow bird's nest amongst the golden gorse, just as their descendants do now.

The Yellow Bunting is found in the Broadland all the year round, but in the autumn and winter its numbers are augmented by overseas migrants or by birds from more northerly localities. During the breeding season it is very common in and near the Broadland roads, where banks replace hedges to a great extent, as is also the case between the meadows and arable lands. It is also numerous on the drier marshes where gorse abounds, and in the "lokes." These latter are blind lanes, running from the villages and farms, and terminating at the water's edge. Many small birds frequent these lokes, as they are secluded and oft-times too muddy for the ordinary pedestrian, unless he has business on or near the water. Some of them have quaint names, such as "Pickamore," or "Pixie's Loke." Until recent years they were bordered by tall hedges—tangles of thorn and briar; and the deep ditches bordering them were filled with marsh plants. But modern strictly utilitarian farming has sadly tidied up these lokes, both from the bird's and also from the bird-lover's point of view.

The Yellow Hammer is not a very pugnacious species, and although the male is often a most brilliant yellow, yet during the breeding season he is not much in evidence. Yellow in nature is a colour which easily melts into its surroundings. A Yellow Hammer on a bare telegraph wire is a conspicuous object; but when it is daintily balanced on a spike of flowering gorse it seems to be merely the culminating point of a spray. When it is threading its way through the tender foliage of a May or June hedgerow, green and gold are blended in subtle harmony. It is only amongst the "bare ruin'd quires" that this bird is really conspicuous.

Yellow Hammers are gregarious up to the end of February and for some time afterwards. Nevertheless, I have seen them courting at the end of January and early in February, if the weather happens to be mild and the sun genial. In January, 1923, I had to cross some fields at Hickling almost daily. The tall hedges on either side

were full of Yellow Hammers which rose from the arable lands as I crossed them. Many of the males were to be seen chasing each other, or else showing off before the females. By February 1, several pairs had taken up their positions in certain spots, and drove off any intruders. In one bank bordering the path for about a quarter of a mile, no less than four pairs of Yellow Hammers had already taken possession of their nesting areas. In all probability these were local resident birds. The bulk of the Yellow Hammers feeding in the fields and roosting in the hedges were still gregarious.

One day I stumbled across a male Yellow Hammer who was very seriously courting a hen bird. He rushed in and out of a hedgerow in a distracted manner, continually uttering wheezing sounds which the female received in a proper spirit. She was sitting on the top of a hedge, alert and attentive, listening with her head on one side, and peering over the hedge at the male, as he prostrated himself on the ground. This was rather unusual behaviour in a hen bird, and contrary to ordinary ornithological etiquette. Now and again the male fanned his tail, thus bringing into prominence the white on the two outer feathers, and the rich red-brown of the tail coverts. When aware of my prying eyes both birds slipped into the grass, and ran about with pretended unconcern. This episode occurred at the beginning of May.

The Yellow Bunting's song may be heard on warm days in February, when it often accompanies the courtship display. From that time onwards the bird sings almost continuously till mid-August, and not infrequently even later. This song is too well known to need any description; it commends itself to all bird-lovers on account of its sprightliness. It is said (with reason) to have inspired the motif of the first movement of Beethoven's Fifth Symphony. I am quite sure that the Yellow Hammer would feel insulted if he knew that his glorification of the sun, and the gorse and the joy of living, could possibly be translated into "A little bit of bread and no cheese."

Like the Corn Bunting, the Yellow Bunting resents interference in its domestic concerns and readily forsakes its nest unless the young are hatched. The male Yellow Hammer shares in all domestic duties and is indefatigable in feeding the young. When approaching the nest he utters a faint "Zit, zit," whereas, as far as my experience goes, the female is silent. Both creep furtively up the bank a little distance away from the nest if conscious of observation, and thread their way through the tangled grass. At the first faint rustling of foliage the young start up simultaneously and open wide their coral-pink gapes, remaining in this expectant attitude until their needs are supplied. In their earlier stages young Yellow Buntings are fed on insects; later on, as is the case with most young Finches, they are fed on partly regurgitated food. When feeding the young, the male Yellow Hammer is very fond of perching on telegraph wires; from this point of vantage he can see if the coast is clear, for he will not descend to the nest if conscious of observation.

In the autumn both young and old roam far afield in search of food. Often they may be seen in company with other Finches and Sparrows. On the wing they may be distinguished from Greenfinches because they show yellow when flying *towards* one, whereas the Greenfinches yellow rump is conspicuous as it flies *away* from the observer.

In winter Yellow Hammers prefer arable to pasture land, probably on account of the cereals which may be picked up. Although devouring a certain amount of corn, the good which all the Buntings do in destroying the seeds of weeds must not

be forgotten. In summer they are largely insectivorous. Professor Newstead saw Yellow Hammers feeding their young on crane-flies. He also classes both the Yellow and Corn Buntings under the heading of "Species which are occasionally injurious, but with the balance of utility largely in their favour."*

During the autumn and winter Yellow Hammers roost in hedges, often near the roadside; sometimes a small length of hedge will be packed with them. During January and February, 1914, I used to walk down a lane close to my Girton home between 3.30 and 4 p.m. in order to watch Yellow Hammers going to roost. About twenty yards of hedge was always alive with these birds at sunset, all chattering very softly together before settling down for the long winter's night. If disturbed by my predatory dog they rose in a mass with a rush of wings, but after circling over a field for a few minutes they gradually returned in small companies and crept back into the thick tangle of thorn and bramble.

THE REED BUNTING

My first visit to the Norfolk Broads was made in a ten-ton yacht in April, 1902. As soon as we cleared Yarmouth my attention was attracted by numerous Reed Buntings swinging on the reeds by the river's edge. They were my first familiar Broadland friends and have therefore retained a special place in my memory. Locally the Reed Bunting is known as the Blackcap or Black-headed Bunting, names which are apt to confuse the unwary. The Black-headed Bunting (*Emberiza melanocephala*) is a very rare bird, and the Blackcap (*Sylvia atricapilla*) is very local in the vicinity of the Broads, whereas the nearly allied Garden Warbler (*Sylvia borin*) is quite common.

The male Reed Bunting in full breeding plumage is a handsome bird with his black cap, white collar, and warm brown plumage; he is bold and lively, and shows to best advantage when clinging to a swaying reed by the water's edge. The hen is more soberly coloured; she lacks the black head and white collar, but has a conspicuous buff stripe over the eye and across the cheek. A male which I kept in my aviary for some years never assumed the cap and collar, but retained the inconspicuous colouring throughout the year.

Though a gallant bird and cheerful the Reed Bunting cannot by any stretch of the imagination be considered musical. His short song consists of a monotonous and persistent repetition of about three notes. This song I have at times found most irritating, though the singer himself is good to look at and decidedly friendly.

On April 9, 1913, a male went through his courting display within eighteen inches of a punt in which I was sitting. He hopped to and fro along a dry bank, crouching and occasionally shivering his wings, every now and again expanding his tail and showing the two white outer feathers, at the same time erecting his black cap and puffing out his white collar till it formed a small ruff. He looked very handsome and determined. There was no female in sight, but probably she was hiding in the sedges and invisible to me.

Again and again, when I have been engaged in a particularly wearisome job involving long hours of waiting, a pair of Reed Buntings has helped to cheer me up.

* *Food of some British Birds*, pp. 16, 47.

They are inquisitive birds; the male particularly evinces great curiosity. In the days when my hiding tent consisted of reed-thatched hurdles, it was a common thing for a Reed Bunting to cling to its sides and peep in. When the male's head appeared through a weak place in the reeds it was impossible not to greet him with some such remark as "Hullo! what do you want?" He never showed fear, but after surveying me with his black beady eye would gently withdraw for the time being. I have sometimes held long conversations with one, inveighing against the crass stupidity of the bird I was wishful to photograph. The Reed Bunting would listen, and then retire, uttering a jeering remark or two. It was only when he settled overhead and sang his crude ditty that I ever wished him further. This kind of thing has occurred frequently, not with one Reed Bunting only, but with many.

I have never found them difficult to photograph; they are seldom shy of the camera for long. One male I photographed brooded and fed the young continually, but probably he had lost his mate. The young were only a few days old, and as it was very wet his task was a hard one, because he had to forage for food and yet cover the nestlings sometimes. When brooding he seemed quite exhausted, and in spite of the cold, he sat with open bill panting and breathing very rapidly, every now and again dropping his head and resting it on the edge of the nest. In another instance, the female only came near the nest, though the male constantly supplied her with food for the young. The latter are fed upon insects, chiefly *Diptera*. The parents bring large bunches at a time and mete them out all round. The old birds themselves devour large quantities of insects and their larvæ during the summer; at other seasons they live principally upon the seeds of wild-flowers and grasses. I often see them in the early morning picking up scraps of food round my houseboat; sometimes the whole family is brought there, even when fully able to fend for themselves.

At the moment of writing, May 24, 1923, two male Reed Buntings, and sometimes one female, are collecting caterpillars and moths in a hedge alongside of the houseboat. The birds are perfectly friendly together, sometimes seizing insects from the same spray. One cock flies away north to a big marsh; the other one and the hen fly south to another marsh. One cock seemed to cram his gullet with caterpillars, which were first knocked against a twig and broken, and when his gullet was full he loaded up his bill with as many broken caterpillars and tiny moths as he could carry. All day long these two pairs work my hedge, returning every five minutes or so. The cocks come much more frequently than the hens; but in all probability the hens collect food nearer the nests, so as to keep an eye on their nurseries.

Both parents are bold in the defence of their young, more so than the other Buntings referred to here. The hen Reed Bunting, especially, feigns injury and tries to lure the intruder away by various ruses if she has young in the nest. She does not readily forsake her eggs, and thus, as far as my experience goes, differs markedly from the Corn Bunting and Yellow Bunting.

A pair of Reed Buntings used always to nest on my island, in spite of continual traffic, before it was raised and the rank aquatic vegetation mown down. One day in April, 1906, I came across a brood of half-grown Bearded Tits on the marsh, two of which were dead and the other four apparently lifeless. However, I picked up the doubtful ones, held them in my warm hands and breathed on them. By-and-by they showed signs of vitality, so I hurried home, and, removing the eggs from a Reed Bunting's nest near my boat, placed the little Bearded Tits in their stead. I had no compunction about effecting this exchange, as the Tits were of more value than the

eggs they replaced. The little birds were feeble and limp when I put them in the nest, for it was then late afternoon. The hen Reed Bunting returned immediately, paused on the edge of the nest, and gazed with ludicrous surprise at the changelings. However, she grasped the situation and soon slipped on and brooded over them, but betrayed much restless anxiety. The male's behaviour was the most amusing. He clung to a reed, angrily expanding his tail and ruffling up his plumage, and with a low wheezing note seemed to expostulate with his mate for the calm way in which she accepted these foundlings which had been foisted upon them. He flew away to a bush and sulked for a bit; nevertheless, he rose to the occasion, and after recovering from the surprise of finding a half-grown family in the nursery, was soon busily engaged in feeding it. The insects he brought were akin to those upon which Bearded Tits feed their young—mostly of the *Diptera* order. Within half an hour *both* foster-parents were busy foraging, while the little Tits were quite lively and sitting on the side of the nest. Unfortunately I forgot about my big blundering retriever puppy, and did not tie him up. In the morning he had destroyed the young birds and raked out the nest. The decree had evidently gone forth that they were to die.

Young Reed Buntings, especially the first brood, soon have to take care of themselves and make way for the second family. They roam about the reed-beds with their contemporaries, but keep as a rule to the dense cover of the marshes. Towards the end of August these merry roving bands consort with Finches and gradually go further afield. I see more Reed Buntings in the Broadland during September and October than at any other time. It would seem as if there were considerable overlapping in their migration and that the home-bred birds have not departed by the time the advance-guard of overseas birds arrives. During the winter—that is to say between November and March—I have seen scarcely any Reed Buntings near Hickling Broad. At that time of the year they resort to the stubble fields, and if snow comes they frequent the stackyards. Further down the river they are more in evidence, especially where arable lands border the rivers and smaller Broads. Towards evening, they assemble in little parties of ten or twelve, and roost in the thick sedge, or amongst dwarf bushes interwoven with sedge.

XXI

THE STONE CURLEW, OR NORFOLK PLOVER

ÆDICNEMUS ÆDICNEMUS (Linn.).

THE wild wailing cry of the Stone Curlew is often the first indication of its presence in the waste places where I know it best—great flinty expanses where Wheatears and rabbits are “thick as leaves in Vallombrosa.” A topsy-turvy land, where Yellow Wagtails patter about amongst prehistoric flint workings, and Ringed Plover nest far from the sea. A land of Romance, where ancient trackways cross each other, or run like long green ribbons athwart the gorse-clad uplands, and trail away into leafy glades where Nightingales sing. There, from behind a line of gaunt firs, I have watched the Norfolk Plover striding to and fro on the horizon line, and heard its plaintive cry; or, stealing out into the open, I have looked for its two beautiful eggs which are laid on the bare earth beneath a sheltering bit of bracken. And I have dreamed meanwhile in the April sunshine of the human throng whose feet have trodden that ancient green track amidst the scented, flaming golden gorse. That seems the right setting for the Stone Curlew—Sir Thomas Browne’s “handsome tall bird, remarkably eyed,” and its wail is in keeping with the vanished past. Judge, then, of my astonishment when, on May 6, 1909, Vincent and I flushed a pair of Stone Curlew while we were hunting for Wheatears’ nests on a Broadland waste! One of the pair flew up uttering its cry, and the other walked stealthily away in an opposite direction. We deemed it prudent to quit that spot as soon as possible, but returned to it on May 19 in order to photograph Wheatears. Again we put up the Norfolk Plovers in exactly the same spot, so while I was occupied with the Wheatears, Vincent searched for the Stone Curlews’ nest, which he found. As there was not enough cover to hide me and my camera, we cut a big heap of rushes and dumped these down some ten feet from the nest and went away.

On May 21 we left my boat at 5 a.m. and after an hour and a half’s punting and walking we reached the Stone Curlews’ nest, and by 6.45 I had settled myself and my camera beneath the heap of rushes. This is not the most comfortable way of photographing birds, but in those days the art had not attained its present pitch of luxurious ease.

It is only by a stretch of imagination that the mere scrape or hollow in the bare ground made by the Stone Curlew can be called a nest. Sometimes a few grass bents are placed loosely in it, but more frequently small stones and rabbit droppings are either left in the depression or else purposely carried there. The two eggs are so protectively coloured that an untrained eye might easily mistake them for stones. As waste lands, rabbit warrens and open downlands, are the favourite habitat of the Stone Curlew, the sitting bird places great faith in the protective coloration of its eggs. Being a tall bird and “remarkably eyed,” it can see across a wide space. Therefore directly we approached its nesting area, the Norfolk Plover quietly walked away and pretended it had no eggs. There is no undue haste about this strategical

retreat, because nothing that the bird does is undignified. It spies you looming on the horizon, and time being on its side, when the right moment arrives it usually gets up and strolls away in a leisurely manner. To me there is something peculiarly fascinating about the calm dignity of the Norfolk Plover under stress of circumstances. Almost all other birds use language when disturbed, but this bird is silent. The passionate Lapwing hurls himself at you with wild cries, or falls apparently wounded at your feet. The Ringed Plover transforms itself into a whirling ball of down in its efforts to distract attention from the young. But this, the largest of the Plovers, merely waits and hopes.

That 21st of May was an ideal morning. From my hiding-place I could see across a wide stretch of level ground to the long low line of sandhills which were a blaze of gold and green beneath the sunlit blue sky. The air was full of those mysterious summer sounds which our dulled senses only feel as an indistinct vibration—a stirring of new life and new growth, even in things called inanimate. To the uninitiated it may seem a dull business, this of crouching beneath a mound of rushes on such a morning; but you have to do it in order to know how really thrilling it is.

I had never as yet seen the Norfolk Plover at close quarters. The first time the bird approached I saw its shadow long before the substance appeared in sight. It pattered up from behind me, and I could hear the swish of the tangled grass as it drew nearer and nearer. The sun, too, was behind me, and the bird's long shadow, now swiftly advancing, now arrested, appearing and disappearing, stirred my pulse with expectancy as few episodes in bird-photography have ever done. Whether this Plover was the male or the female I do not know, but from its behaviour I judged it to be the hen.

By-and-by she summoned up sufficient courage to advance just the few inches necessary in order to bring her real self into my line of vision, and then stood with one uplifted foot hesitating, and eyeing my shelter. After that she walked straight to the nest and settled down to brood. I let her sit quietly for some time, as she seemed suspicious, for to me the chance of observing a bird closely is much more interesting than the mere photograph. She sat there absolutely rigid, and kept one huge lemon-yellow eye upon my rubbish heap. After some minutes this cold fixed stare made me feel guilty and uncomfortable and I thought to end it by dropping my shutter, but just then a heavy weight alighted on my shoulder. This was obviously the other bird, so I kept quite still. The hen's attitude changed immediately. She fluffed out her feathers, half-closed her eye, and looking up at her mate uttered a contented "Whut, whut," to which he responded with a similar guttural sound. I was already rather tired with my cramped position, and this additional weight on my arm did not mend matters; so after a time I dropped the shutter. The sharp rattle, however, failed to disturb either bird, but when I moved my arm in order to change the plate they both flew off, uttering their peculiar wild cry.

But the brooding bird soon returned. I first caught sight of her far away between me and the sandhills, and watched her run in and out of the rushes as she threaded her devious way back to the nest. The word "run" may suggest vulgar haste, but the Stone Curlew's movements are full of dignity and grace, combined with speed. Her run is like the swing of a thoroughbred, as compared with the shuffle of a cab-horse. She would never return direct to the nest, but paused frequently to look about and make sure that the coast was clear. Sometimes she went off at a tangent, or described half a circle, before reaching her goal. As she drew nearer the nest her erect



THE STONE-CURLEW TREADS DELICATELY.



THE STONE-CURLEW IN A LISTENING ATTITUDE FOR HER MATE



STONE-CURLEW, TWO DAYS OLD, CROUCHED FLAT TO HIDE THEMSELVES,



—AND FLATTER STILL WHEN TEN DAYS OLD.

attitude changed to a stooping gait, the head was thrust forward, and the rapid steps gave place to a mincing gait as if she were treading on hot cinders.

Again the male perched on my shoulder, but apparently considered his position too conspicuous, for he soon dropped down and spent most of his time walking about amongst the rushes, occasionally standing (just beyond the range of my camera) and bowing to his mate. Once he changed places with her and brooded over the eggs; before doing this, a certain amount of punctilious etiquette was observed. He advanced with elegant mincing steps, bowed, retreated, and then returned and bowed again. The brooding bird seemed in no hurry to move. Then they both rubbed bills and uttered little contented cries, after which the female vacated the nest and slipped stealthily away.

Having exhausted half my supply of plates by 8.30 and feeling very hungry, I crept out from beneath the rushes and went in search of Vincent. He was standing outside a cottage after having made a successful raid upon its larder during the owner's absence. A second and equally successful raid was then made on my behalf. This was the first meal I had ever enjoyed in that remote cottage, but it was very far from being the last, for the marshman—or, as in this case, *woman*—is nothing if not hospitable. After a hearty breakfast I returned to my rubbish heap and expended the remaining plates.

The next visit we paid to the Norfolk Plovers was on June 9, when we hoped to find young birds. The eggs had vanished, but both adult birds were about, so we felt sure that our hopes would be realized. As it is no use hunting for young Stone Curlews in a hap-hazard manner, we concealed ourselves and watched the old birds.

By-and-by both parents returned and alighted on opposite sides of a certain tuft of rushes and then ran to a given point; we fixed our eyes on that point and ran also. For some time the two downy nestlings eluded our search, but eventually we found them crouching among the rough herbage close together, and apparently as dead as doornails! Just two little flat three-inch strips of buff and brown plush with half-shut glazed eyes and limp bodies, which accepted whatever position we put them into and maintained it till further orders. However, when convinced that feigning death was no protection, the inert bodies became suddenly and wildly animate, scuttling away with surprising nimbleness and finding deeper cover in no time.

A fortnight later we hunted for them again, because, fortunately for us, the bit of rough ground where they first saw life was wired in, therefore escape from the enclosed few acres was impossible till they were able to fly. Their education had advanced in proportion to their increased size. They crouched in the same inert manner as before, only the large glassy eyes were not closed, but remained fixed unblushingly on the photographer, while their long lithe bodies seemed exactly to follow the contour of the ground. Being amazed at this Gorgon-like stare, curiosity prompted me to advance a rush slowly and steadily towards the pupil of the eye nearest to me, nor did it blink till the rush was all but in contact with the iris. I remarked upon this Spartan self-control to Vincent, who was lying in the grass on the opposite side, where the youngsters could not see him, and he replied: "But they have been blinking the eyes my side all the time." As I did not believe this statement we changed places; Vincent knelt by the camera close to the birds, and I concealed myself from their gaze on the opposite side. It was quite true, they *did* "wink the other eye."

On July 7, we hunted them up again. By this time they were big ungainly chicks and looked very untidy, as they still showed traces of the nestling down. They were

nearly as big as their parents, but crouched, as before, the moment we discovered them. I lifted them up and placed them in the lap of a girl who was sitting beside me. The young Curlews pursued the same unvarying tactics, and crouched on her navy-blue frock as if it had been the bare ground and they themselves in harmony with it. I ringed both birds and stood them up; they regarded me with a cold glassy stare, and then strode off as fast as their hurt dignity would allow. That was the last I saw of them. I am afraid they were ultimately "collected" by a keeper on an adjoining marsh. No Stone Curlews nested in the vicinity of the Broadland again until 1922, when a pair successfully hatched off their brood further along the warren. Formerly Stone Curlew nested regularly all along this warren. They returned and bred there again in 1923. Possibly, in time, they may once more become a regular breeding species.

XXII

GREAT CRESTED GREBE

PODICEPS CRISTATUS (Linn.).

GREBE FROM BRETON *Krib*, "A Comb." LOCAL NAME: LOON.

THE Great Crested Grebe, though resident throughout the year in some parts of England, forsakes the Broads during October and retires to the sea, and to rivers and tidal estuaries. It is a mistake to say that Grebes entirely leave inland waters during the winter months, as they may be met with on various meres all over the country between October and February. A few resort to Hickling Broad even when it is frozen over, and are there found swimming about in the wakes, which are kept open for the sake of wild fowl. There storm-driven birds, however, are the exception rather than the rule.

The Grebe returns to its breeding ground at the end of January or the beginning of February. After hearing no wild fowl voices other than the quacking of Duck, or the chatter of Coots and Moor-hens, the first guttural honking of the Great Crested Grebe is a welcome sound. On January 29, 1923, I think that at least five different marshmen on their way home from work called to me in passing: "There's a pair of Grebes on the Broad." Two nights afterwards a friend sitting at tea with me suddenly exclaimed: "Hullo! There's a Grebe calling," and we both rushed out to see and hear it. There is nothing melodious about the Grebe's call, but it means the rending of the veil of winter darkness; besides which the birds themselves are so extraordinarily beautiful.

On April 15, 1923, a party of nine Great Crested Grebes came in and flew restlessly to and fro over Hickling Broad all day, alighting at intervals in order to feed and go through the courting display. They all left in the afternoon. When they first return to their breeding grounds, some of the Grebes spend a considerable time flying to and fro in an apparently aimless manner. Probably these are unpaired birds in search of territory and mates, as many of them pass on. But some of the Loons seem to have paired before they reach their breeding areas—if, indeed, they do not pair for life—and after a prolonged and vigorous courtship settle down in their old haunts.

The courtship of the Grebe is a wonderful performance. Sometimes it is carried on in quiet corners and sheltered waterways, but frequently the display takes place in open water. Weather conditions do not matter in the least to the Grebe. On rough stormy days, when Hickling Broad is churned into foam and swept from end to end with icy blasts, the Grebes float buoyantly on the water absorbed in their mutual display. The male swims round and round the female, with his head and neck laid flat on the water; then suddenly he raises his head, shakes his crest and tippets which are spread out to their fullest extent, and proceeds to raise and lower his head with regular rhythmic movements. Very often both birds will sit on the water facing each other, their beaks almost touching, and raise and lower their heads in unison. In this attitude they resemble a double "S," the right hand letter being reversed

thus—S2. Every now and then the male swims away a few feet, then turns and rushes at the female, shaking his crest vigorously all the time. Sometimes he bows solemnly before her, after which both birds shake their crests. Sometimes the courting is unaccompanied by the slightest sound, but it is generally preceded by a series of low resonant chuckling notes which constitute the male's "song." Occasionally both birds utter their harsh call-notes, while the male churns the water into foam with rapid strokes of his feet.

It is a curious fact that the males fighting tactics closely resemble his courting attitudes. He challenges his foe, and the bird of his choice in much the same style. But when angry, the crest shaking is done with extended head and neck, so that the tippets are partially submerged and therefore wet when shaken in the enemy's face—a particularly insulting gesture, it seems to me. A great deal of fighting between rival males takes place during March and April. This is largely for the sake of territory. I was much amused one day, while watching three Grebes fighting, by the sudden appearance of two fresh combatants. These birds waited solemnly just out of the battle area. They were "cleared for action," and sat with heads up and crests displayed, motionless, intent, with wings half raised, ready at a moment's notice to dash into the fray. Watching Grebes fighting must be akin to watching a naval action. They indulge in various submarine and torpedoing activities, which are described in detail later on.

In May, 1923, a Grebe's nest in my bay came to grief, and the birds built another one close to the island. While this was being done, and all the time the female was laying her second clutch, the courtship display was renewed. For more than a week, both birds could be seen going through the head shaking and double S movements all day. In fact, this second courtship was more vigorous than the first, and carried out during the most appalling weather. Short flights were also indulged in by both birds. Finally, they settled down to the crooning stage. In the evenings especially, the chuckling that went on within a few feet of my boat was most soothing after days of wind and rain more in keeping with November than May.

The Loon is called by Sir T. Browne* "an handsome and specious fowle," and certainly no bird can compare with it for stateliness, noble bearing, and aristocratic exclusiveness. Therefore I count it one of my chief joys that I have lived many summers between two pairs of these beautiful "fowles"; so close indeed in some years that I know all their outgoings and incomings, though the nest itself is well hidden from view. After long days spent in strenuous hunting or equally arduous waiting for birds, no words can adequately describe the delight of watching the inner life of the Grebe as it is unfolded during the long-drawn-out twilight of the Broads. The adult Loon's voice lacks musical quality, his call-note is a hoarse honking sound; but the sonorous crooning note of the breeding season is suggestive of utter content, while the dulcet tones of the young Grebes are like the jingling of far-away silver bells. Their prattling is sometimes kept up far into the night, as if they lived all over again each event of their busy day. One is lulled to sleep by this "sweet jargoning," and awakened before dawn by the same silvery sound.

In the Broadland the Grebe is a very shy bird; all the nests I have ever seen have been placed amidst the densest cover, and are inaccessible except by means of a duck-punt. The nest varies considerably in height; sometimes it looks like a mere floating raft of decayed vegetation; this is especially the case when the first eggs are laid, as

* MS. notes and letters, 1685-1692, printed with Notes by T. Southwell, 1902, p. 13.



A MALE GREAT CRESTED GREBE, THE GLORY
OF THE MERE



THE STRIPED YOUNG GREBE.



THE NEIGHBOURING NESTS OF COOT AND GREBE; THE GREBE UNCOVERS HER EGGS.

they are sometimes barely above the level of the water. But while the hen is brooding, the male constantly adds to the nest; I have seen him surround her with damp and dead aquatic plants, which he often dives a considerable depth to obtain. These she tucks in from time to time and so gradually raises the nest, which, being composed of fermenting vegetation soon becomes a veritable hotbed, varying in temperature from 67° to 73°.*

Nest-building and incubation are undertaken by both sexes, though the female broods the greater part of the time. The eggs which vary in number from three to five—very rarely six—are white when first laid, but soon become stained from contact with the dank weeds lining the nest. They are seldom left uncovered; however rapidly the old bird slips off the nest, she usually manages to cover up the eggs with bits of wet weed, using her bill with lightning rapidity while doing this—one swift right and left movement and the thing is done more or less completely. One instant you may see her upright and alert, keenly alive to danger, and the next moment she is gone, leaving the eggs covered. When she deliberately leaves her nest however the eggs are very carefully hidden, though seldom completely so.

In June, 1909, I photographed a Grebe's nest containing six eggs, but as these were chipping I did not stay many minutes in their vicinity. Later on I saw the male lure his firstborn into the water, and some days afterwards both parents were proudly conducting six young ones round the Broad. This is an unusual number of eggs,† and an abnormal number of young, for one seldom sees more than two or three young Grebes with their parents; the proportion of nestlings to eggs is comparatively small.

While the female is brooding the male mounts guard outside the breeding ground, and is more pugnacious than during any other period of his career. He is very attentive to his mate, and feeds her diligently while she is brooding. For the most part she broods with her head and neck drawn well back, lying asleep or dreaming. When alarmed she slides into the water and gradually submerges her body till only her head with its chestnut crest and tippet are visible, and as these harmonize completely with the brown sheaths of the reeds, she is almost invisible.

The male takes several turns at brooding during the day, but individual birds vary in their conception of parental duty. It is then, when seen at close quarters, that one realizes how extremely handsome the male is when compared with his mate—not only is he bigger and bolder looking, but his crest and ear-tippets are larger and much brighter in colour. He takes his position very seriously and is constantly on the alert. Though I have sometimes lain in a punt nearly all day beside the nest, I have never caught the male bird asleep while brooding. But then he seldom broods for more than an hour at a stretch, after which he is quite glad to relegate his duties to the female. No bird—except the Mute Swan—is more solicitous over the welfare of his mate. In May, 1904, I spent eight hours a day for ten days hidden in a tiny duck-punt, watching and occasionally photographing a pair of Grebes. In 1906 I spent another week watching a pair of Coots and Great Crested Grebes, which had nested within eighteen inches of each other. But the life-history of these birds is told elsewhere.‡ The Great Crested Grebe is occasionally double-brooded. In 1914 I had definite proof of this. A pair hatched off three young which were about

* Stevenson's *Birds of Norfolk*, completed by T. Southwell, 1890, vol. iii., p. 240.

† Even larger clutches have been recorded, but are, of course, quite exceptional and in some cases may be due to two females laying together.

‡ E. L. Turner and P. H. Bahr, *Home Life of Marsh Birds*. Witherby, 1907.

three weeks old on June 11; the female laid again in the same nest, while the male took entire charge of the little ones. I have seen full-grown young being fed by their parents as late as September 25, 1913.

In June, 1910, I spent the greater part of three weeks on a small and very secluded Broad where Grebes abound; the same spot where the family of six was successfully hatched. That year there were no less than seven pairs with young round my retreat, and in the quiet June evenings these stately family parties feeding and playing around me were a constant source of interest. Each group showed great exclusiveness. Heads of families were constantly spoiling for a fight, and any encroachment upon each other's territory led to an immediate declaration of war. The aggressor in most instances withdrew directly the owner of a given area stood up for his rights, as if at heart he acknowledged certain just claims, but nevertheless thought it worth while to challenge them. But one evening at Hickling, in July, 1914, I saw a most overt act of aggression which was speedily and effectually punished.

One of the two pairs of Grebes which annually nest near my boat, accompanied by three young ones, made for a certain reed-bed and sheltered bay which rightfully belonged to the other pair. For the sake of simplicity, I will call these two pairs A and B. A's three chicks were half-grown and already carried themselves with the dignity befitting their rank. Nothing could exceed the stateliness and the splendid disregard of consequences with which both parents and young bore down upon B, whose angry challenge they steadily ignored. B's mate was still brooding, and her chicks were on the point of hatching. B assumed the fighting attitude without either advancing or retreating. This consists in a partial submergence of the body, while the neck is stretched to its fullest extent and laid flat on the water, the bill remaining just above the water and the crest being laid back, so all the white on the bird is concealed, and from stem to stern he is a uniform dull colour—an evil-looking little submarine that means mischief. By constant paddling he makes a considerable splashing, but remains stationary.

A's party steadily advanced to within twenty yards of B, who then slightly raised his head, spread out his ear-tippets, and dragged them in the water. Then he shook the drops from these, snorted defiance, and disappeared. The next moment A and his family were in full and ignominious retreat. The submarine B had dived, and struck A from below, causing him to utter a startled cry, and spring clean out of the water before retreating. Not one of the five cast a single backward glance until they had put the width of the Broad between them and their assailant; they then skirted the opposite bank and recrossed to their own area some distance higher up. I never again saw them attempt to invade B's territory that season. Meanwhile B swam slowly and sedately back chuckling to himself, expanding and contracting both crest and ear tufts. This is the only occasion upon which I have seen one Grebe so absolutely ignore the danger-signals of another; he either accepts the challenge and fights it out, or else retires.

Late one August evening in 1915, I saw a more protracted fight between the two pairs of Grebes occupying the same breeding areas as those in 1914. A's family was superior in point of numbers to B's, for *he* was feeding two full-grown youngsters while B only possessed one. A went fishing in B's area, B flew at him and seized him by the neck and thrusting his head under water, propelled A towards his own area. There was a desperate struggle; A freed himself and swam as fast as he could, but B overtook him and thrust his head under water. Again A shook himself free, B gave

chase, jumped on A's back and seized him by the back of the neck, thus bringing his whole weight to bear on the unfortunate A. I began to think it was time for me to interfere; however, just then B let go, or else A threw off his adversary as they were within A's lawful territory. B swam back to his one chick, carrying his head high, and evincing all the pride of a victor. Meanwhile, A paddled towards his mate who, with her two young ones, was waiting for food near their own reed-bed. The rest of the story is pure comedy. A's mate left her crestfallen husband with the chicks and went in pursuit of B, who was showing off in a most galling manner just within his own territory. The enraged female made repeated assaults on B, but the latter refused to fight her. He dexterously avoided her rushes by diving, but always came up within a few feet of the spot where he disappeared. His behaviour certainly was aggravating, he seemed to enjoy the fun while his admiring offspring looked on. The female's rage was unbounded, but at last she grew tired of challenging an enemy who refused to take up the gauntlet, and returned to her family, every now and then turning round and shrieking at B. The latter splashed and pirouetted on the water till dusk, then he and the young Grebe retired from the scene. Twilight fell and all was quiet.

This is the only occasion upon which I have seen Great Crested Grebes actually come to grips; at one time I certainly feared that B would drown A. The birds were so intent upon their own concerns that I was able to whistle for my two companions to come and enjoy the fun, and together we watched the little comedy through. The thing which amused me most was the refusal of the male to fight the female. "Honour and Arms scorned such a Foe." But he need not have jeered at her!

Young Great Crested Grebes in the down are a dull brown, curiously striped with white. I have never handled any young bird whose plumage is so exquisite to the touch, or so wonderful in texture, as the baby Grebe's. They also possess a remarkable decoration on the forehead—a patch of bare skin which is bright vermillion in colour.

Doubtless at some time during the evolution of this species both the stripes, and also the red patch, had their uses. If the young were kept in the nest the stripes would be very protective, but as they slip into the water when danger threatens and practically spend all day there, only returning to the nest at night, the stripes have no apparent use; moreover, the little striped head thrust up between its parents wings and generally seeing life from the safe vantage of the old bird's back, is quite a conspicuous object. It will be seen from the illustration that the stripes continue right down the bill; these persist till the final moult into adult plumage.

When the nestlings are about to hatch, the adult Grebe sometimes removes a considerable amount of material from the nest, so that the young can easily slip to the water's edge, and, what is more to the point, can scramble up again when tired. The male with many encouraging cries induces the chick to leave the nest, and then suddenly backs up to the nest. The baby Grebe only a few hours old catches hold of the soft down beneath his parent's apology for a tail* and thus hoists himself on to his father's back, keeping his balance by holding on to the neck feathers; the nestling thus rides at ease and is given his first lesson in the art of diving. As the young one gains confidence the parent resorts to sterner measures, and by a sudden twist often tumbles the chick into the water, where, after the first surprise, he splashes about to his heart's content, uttering many squeals of delight. When tired, he is allowed to climb up again and is then taken back to the nest, when another baby is carried away

* The Great Crested Grebe's tail is practically obsolete.

for instruction, or, perhaps, two at a time. Young Grebes do not all hatch out together, and until the family is complete the chicks are carried to and fro in this manner, sometimes by the male and sometimes by the female. When brought back to the nest, they nestle beneath the brooding bird or clamber on to her back, and thrusting up their little heads, survey the world in general.

During the first twenty-four hours of their life the young are fed by the female on partly regurgitated fish. The male will bring a very tiny fish to his mate, which she seems merely to chew up; it is not partially digested as the process only takes a few seconds; she then doles this food out to the baby in minute bits. But the chicks soon disdain this method of feeding and stretch forth eager bills in order to take a whole fish for themselves. The Loon's gizzard contains feathers, instead of the stones swallowed by other birds to assist digestion. I have seen the male Grebe trying his hardest to induce his unwilling offspring to swallow a feather. At first the youngster will sit stolidly on the edge of the nest, while his anxious parent uses persuasive language, constantly dipping the feather in water and holding it up before the chick, who eventually does swallow it, and in time learns to pull out his parent's breast-feathers for himself. Even when three parts grown, young Grebes will scramble on to the old birds' backs. Many an evening I have laughed at what appeared to be quite a good game, in which both adult and young took part. A very much overgrown chick will succeed in getting a ride, holding on like grim death, while the parental victim twirls rapidly round and round trying to dislodge him, squeals of delight issuing meanwhile from the whole family. Eventually the old bird will suddenly turn on his side, give a sharp kick, and the youngster rolls off.

When only one brood is reared, the young remain with their parents till full-grown; if the female nests a second time, the first brood remains with the male till the needs of a second family claim his attention. Even when they have attained their full size, the old birds—especially the males—continue to fish for the nestlings. The latter utter shrill piping notes until well able to fly.

One August evening in 1914, I saw a male Grebe catch an eel about six inches long. He made desperate and unavailing efforts to kill his prey by the simple method of suffocating it; but the eel was lithe and slippery and refused to be held under water for a sufficient length of time. After some five minutes of mutual struggling, the Grebe swam to his mate and their one fully grown chick, both of whom were sheltering behind some reeds. He handed the now feebly struggling eel over to the young bird, who eagerly seized it, but dropped it at its first wriggle. The eel again made desperate efforts to escape. Eventually the male Grebe caught it by its head, and the young one by its tail, and between them they pulled it in half.

The flight of the Loon is both swift and strong, though during the actual breeding season it can seldom be induced to take wing. Occasionally one will indulge in short flights and circle round and round its home, apparently for its own amusement. When pursued Grebes swim away rapidly with head and crest erect, continually glancing behind them in order to see how much ground the pursuer is gaining; when close pressed they dive with extraordinary swiftness, and reappear after several seconds where least expected. When there is time for deliberation the bird's manner of diving is unique. It will slowly sink its body till only the head and part of the neck are visible, then down goes the head and the bird disappears leaving scarcely a ripple behind.

I have never seen a Great Crested Grebe on land, though it is said to be able to

walk. The special modification of the leg-bones which fit it for swimming and diving make progress on land difficult. The Loon slips off the nest in a second, but the return is slow and laboured. Pausing on the outskirts, the bird gathers itself together for a jump and lands heavily somewhere on the edge of the nest; it next lurches forward till astride the eggs, then opening its breast feathers down the middle dividing line, it falls forward on to the eggs enclosing them between the two thick walls of plumage. These deliberate movements of the Grebe bring into view the beautiful and highly specialized three-lobed foot. When the foot is closed at the end of the swimming stroke, these three lobes are folded one behind the other so as to offer the least possible resistance in bringing the foot forward for the next stroke.

This species practically lives its life on the water, for although there are several so-called "cock-nests" in the vicinity of the nursery, the use of these has not been discovered. They are not used by the adult male as dressing places as is the case with Coots, for the Loon's toilet is performed on the water.

In the clear atmosphere of a June day there are few prettier sights than that of a family of Grebes bathing and preening themselves in the sapphire-blue waters of the Broad. The old birds heel over on one side, thus bringing into view the silvery brilliance of the breast and flank feathers. They twirl round and round paddling with one foot, making a huge splash, and calling to each other till their little patch of the Broad seems a blue mist of sunlit water and burnished silver. When these stately birds climb down from their exalted pedestal, they abandon themselves wholly to the enjoyment of the moment.

But a calm evening is the best time to watch Grebes as they are then out to enjoy themselves, and do not immediately dive in an irritating manner just when you think that you have fixed them with your glasses. Even when the female is incubating, she will leave her eggs after sunset and join her mate for a little while. Her *young* are never left unless there is a fight going on. Together the two birds play in the twilight, the male swimming round the female and crooning contentedly. At 8.15 (solar time), one June evening, I saw the male take a fish to his mate who was waiting outside the reeds. After she had swallowed it they stood close together, raising and lowering their necks and gently brushing their tippets together; they did this ten times, after which the female returned to her nest and the male to his toilet operations. The rougher the water the more invisible the Grebes, for then they often swim low with outstretched neck, while the long slim torpedo-like body is hardly distinguishable from the grey water.

Both old and young seem to get up in the morning before they are awake! I often see them emerge from the reed-beds on a misty September morning, before the rim of the sun appears above the low horizon, and float down the Broad with no apparent effort. With their necks and heads laid right along their backs, and wings slightly raised, these shapeless mystery birds loom twice their natural size in the grey dawn. Grebes as already stated are more indifferent to weather than most species. During the wettest Broadland season I have known—July and August, 1922—I used to see both my two families asleep out in the open during pouring rain several times a day. Neither does rain interfere with the games of the young birds; they play just as contentedly, nothing seems to depress them except a shortage of food. During the last few years the Grebes on Hickling Broad have had difficulty in obtaining a good supply of food for the young, and sometimes the querulous cries of the hungry brood have been quite irritating.

When first rescued from the danger of extinction, Grebes increased very rapidly under protection. In a very few years, all the Broads were once more stocked with Grebes. Naturally, as soon as the normal number of breeding pairs was reached, the increase was not maintained; for a given area can support only a certain number of birds. There has been no increase on Hickling Broad during the last fifteen years, but rather a decrease; six or seven pairs only are now breeding there. Formerly they used to rear an average family of two or three young apiece. During the last five years, however, they have seldom brought off even two nestlings each. On the other Broads—South Walsham, Ranworth, Ormesby, and Rollesby—the Grebes rear larger families. In these Broads the water is deep and discoloured, and consequently the fish are less wary. In the clear shallow water of Hickling Broad (shallower than ever of recent years), the Grebes cannot get up sufficient speed to catch fish; for often, as soon as they are within striking distance, the fish see the Grebes and dash into safety. Hence Grebes have some difficulty in obtaining a sufficient number of small roach, rudd, and bream for the young, and are obliged to feed them largely on eels, a dish not so well suited to the young Grebes.

The deep water in Hickling Broad is confined to certain areas each of which is frequented by one, and sometimes two, pairs of Grebes. Nevertheless, when the nestlings are first hatched, the male bird goes far afield in search of food. I have, on several occasions, picked up day-old nestlings dead and in poor condition. Recently two adult Grebes were found dead, and the gizzard of each was packed, until it was as hard as a stone, with the green, slimy weed, locally known as "lamb's skin."* When pulled to pieces the stuff was like cotton-wool, interwoven with the feathers which Grebes swallow for digestive purposes. No doubt these old birds had been working hard for food in the shallows and places where this weed abounds.

Pike are powerful enemies of young Grebes, as they are indeed of the young of all water-fowl; but whereas young Coots, Moor-hens, and Water-Rails are kept within the seclusion of the reed-beds for some days, the young Grebe leads an adventurous life almost as soon as it is hatched, for it is taken out to the open water and sees life at a very early age. The young are guarded by both parents, but I have frequently seen the old birds utterly regardless of the young if another family trespasses on their territory. While the parents are fighting and pursuing the submarine tactics already described, the very conspicuous young swim round uttering loud querulous cries.

In 1922 a female Grebe near my boat took an intense dislike to one of her three young. She always went about with two, while the male took charge of the third. I have seen her refuse to feed it, and sometimes pursue the luckless youngster and push its head under water. When it was treated in this fashion, the male would call it back to the reeds, where it generally went to sleep between the intervals of feeding.

Since Hickling Broad has become so shallow, Grebes, when disturbed, often take to the wing, instead of diving, and will fly ahead of a boat instead of submerging themselves and reappearing on the other side. Normally, they fly very seldom during the summer, when once they have taken up their breeding areas. In the autumn, they again become restless, as if exercising their wings before migration. The young also begin to fly. In August the males sometimes vanish mysteriously, and the female alone feeds and tends the young long after they appear to be full grown. It seems to me that, occasionally, the males move away from their territory before the

* It is not a weed, but one of the *Algæ*.

females. On the other hand, they sometimes depart together—old and young. At any rate, on October 23, 1914, I came face to face with two adults and one immature Grebe in the trough of a North Sea wave, some miles off Holy Island.

After the autumn moult, which may be completed by October 23, the Great Crested Grebe loses its distinctive crest and tippet, which are not donned again till the following February. Then, in spite of storm and cold, the lone Loon's instincts recall him from the sea to the peaceful inland waters, and to the territory which is his by inheritance.

XXIII

CORMORANTS IN NORFOLK

PHALACROCORAX CARBO (Linn.).

THE nesting of a pair of Cormorants in Melton Constable Park was one of the most interesting ornithological events recorded for the year 1914. They chose for their nursery a disused Heron's nest, placed at the top of a large alder on a tiny island in a lake. It was about forty feet up and difficult of access, owing to the unsound condition of the tree. Two young birds were visible on July 1, but I think they must have been hatched some days earlier. By July 8 the brood was found to consist of four. The first two birds were fledged on July 28, the third on August 1, while the fourth remained in the nest till August 6.

Cormorants do not breed on the East Coast, south of Flamborough Head. They have not been known to nest in East Anglia for about a hundred years. William Turner wrote in 1544: "I have seen Mergi nesting on sea-cliffs about the mouth of the Tyne river, and on lofty trees in Norfolk with the Herons."* Sir T. Browne, in his MS. notes and letters written between 1605 and 1682, and printed with notes by T. Southwell in 1902, states† that Cormorants built at Reedham "upon trees from whence King Charles the First was wont to bee supplied." There is no evidence to show when they ceased to breed at Reedham, but it is stated in Lubbock's *Fauna of Norfolk*‡ that Cormorants nested in Heron's nests in the woods of Herringfleet on the shores of Fritton Lake in Suffolk occasionally, but not regularly; that in 1825 there were many nests, and in 1827 not one. Since that time till 1914 there is no record of Cormorants having bred in Norfolk or Suffolk.

I paid my first visit to the birds depicted here on July 7. After prospecting from all points of view and taking trial photographs, we found it impossible to obtain successful results, either from the shore or from a boat; so we landed on the island, selected what appeared to be a reasonably strong tree about twenty feet away from the Cormorants' nest, and at dusk a tall ladder was securely fixed against it. No platform or shelter of any description could be erected, because at that height one was on a level with the topmost branches of the surrounding trees, most of which were too slender to bear any weight, or else too decayed.

The next day, July 8, when I first mounted the ladder, one old Cormorant sat quietly on a branch near the nest for some time, and I exposed a plate more or less at random before the bird flew away. This was the only one exposed during that day, for a large limb and several smaller twigs had to be removed from an adjacent tree before the nest was clear. For this to be done the ladder had to come down, and men and saws hunted up—a process which took about three hours and entailed a lot of labour, for the ladder alone required three men to lift it into position. I did not care to risk disturbing the Cormorants any longer, and so left them for several days.

* *Turner on Birds*, edited by A. H. Evans, 1903, p. III.

† P. II.

‡ New edition 1879, p. 174.



A PHENOMENAL NESTING SITE.



LIVELY YOUNG CORMORANTS.



SURVEYING THE WORLD.



TRYING HIS WINGS.

The only good light on the nest was between 11 a.m. and 1.45 p.m., but being several feet beneath it, my camera had to point upwards towards the underside of the surrounding foliage, which never reflected any light. Moreover, the ladder swayed with every gust of wind, and the Cormorants were never still, so that no exposure above one-twenty-fifth of a second was practicable. I used my Birdland camera throughout at double extension; it was slung round my neck and balanced against a pole tied at right angles to the ladder.

Cormorants somehow look ridiculously out of place in trees, as their curiously shaped feet with the four webbed toes do not seem adapted for perching. I tried very hard to get a good photograph of their peculiar method of hanging on to a branch, but the colour of their feet harmonized with the wood so closely that they failed to show. I sometimes laughed aloud at the terrified expression of the adventurous nestlings, when they first began to perch on some slender branches near the nest. If a sudden puff of wind came, the birds wrapped their feet tightly round a twig, crouched down and craned their necks towards the haven of the nursery, and sometimes made desperate efforts to regain it, opening their beaks meanwhile, and panting with fear. It occurred to me that possibly I might present the same frightened aspect to the Cormorants, when sudden gusts compelled me to cling to my ladder with both hands, as both it and the tree bent before the wind. The first batch of photographs obtained between July 7 and July 20 showed only two birds clearly. Occasionally the head of number three appeared, but the fourth was not of an age to sit up and take notice except at feeding-time, when all four showed up plainly as soon as the old bird approached. That fortnight was a particularly hot one, and the two elder birds sat with open beaks pointing skywards rapidly inflating their throats. Sometimes they leaned against a branch panting in this peculiar manner. I do not know whether they liked or disliked heat.

They loved sunning their queer little aldermanic down-covered bodies, and expanding their wings, flapping them solemnly to and fro. I knew when the old birds were near because the nestlings would suddenly stand up and, gazing skywards, follow the circling flights of their parents with a corresponding circular motion of their four heads; they also gave vent to four wailing cries when the old bird sheered off without feeding them. On two occasions only did an adult Cormorant come within range, but the result was not satisfactory. To my intense annoyance however, one invariably returned to the nest directly I left the island. The nestlings were fed by both old birds, and each in turn received a due proportion of food. There was no pushing or quarrelling, and their table manners—for Cormorants—were quite good, but the noise they made during the progress of the meal was like that produced by four unoiled pump handles all working inharmoniously together. Between July 21 and July 26 a continuous gale raged, but on the 27th there came a lull and I made a dash for my birds, securing the one bright hour of the day for my work. This was the first time I obtained a photograph of all four nestlings together. Just after mounting the ladder a sudden heavy shower forced me to shut up the camera and descend. Then occurred one of the prettiest sights it was my luck to witness, but I had to remain fretting and fuming on the ground. The four young birds stood upright and flapped their wings in unison all the time the storm lasted, twisting their heads from side to side with quaint sinuous movements, and evincing every symptom of keen enjoyment. They were at all times amusing, and the first and fourth birds had an individuality of their own. No. 1, being the eldest and strongest, swaggered considerably, and lorded

it over the rest. No. 4, being the last in the nest and somewhat less adventurous than the others, played solitary games. They all loved a tug-of-war with bits of stick; two or three, and sometimes all four, took part in this. Their individual diversion was to pull off leaves, drop them outside the nest, and then lean out to watch them flutter out of sight. Sometimes two interlocked their beaks and engaged in a mild sham fight. They never quarrelled, and their mutual conversation sounded quite amicable, if raucous. On July 27 the two older birds stood on the edge of the nest flapping their wings vigorously and rapidly for ten minutes at a stretch, so that I was not surprised to hear three days later that they had flown. I was told that there were "six birds on the wing," but the two younger birds were, as yet, quite unable to fly.

When I went again on the 31st two flew out of the nest, while the remaining birds sat up and watched the world in general. Later in the day I rowed after the two fledged birds, and found that they could only take short flights, after which they either dropped on to the water or stood on shore. Sometimes they perched on a rope which was stretched across one end of the lake for the use of bathers. The young Cormorants found some difficulty in balancing themselves on this, and generally ended by falling into the water. I stayed that night at the keeper's house, hoping to creep up the ladder at dawn without disturbing the sleeping birds, but it was a wet morning, and photography was out of the question. I went out at 5.30 and found one bird sitting on the bridge and two playing in the water, this left only the youngest at home. I spent from 9 a.m. till noon near it, but it slept peacefully for two hours, while I spent the time watching the others disporting themselves with their parents on a spit of sand by the lake-side. From my perch I had a fine view over the lake and so had the one remaining bird, which every now and again complained loudly at the solitude, or else vigorously exercised its wings; but its chief amusement consisted in pulling the nest to pieces and remaking it, or else dropping twigs overboard and looking after them as they fell.

There was a tremendous fascination about watching these birds in their first efforts at flight, one almost saw the rise and growth of the instinctive impulse to fly. I grew quite excited about it myself, because at such close quarters one not only observed the continuous efforts resulting in a daily increase of strength, but also the fearful joy of it! The spasmodic gasping, and wild startled eye, the dread of that first plunge into the new life, and then—it was an extra puff of wind that finally launched No. 3—the young Cormorant has sky and sea as well as the earth for his wanderings. On August 3 I erected a hiding-tent on the sandy point where I had seen the Cormorants disporting themselves, and I stayed that night in a lodge by the lake-side. The youngest bird was still in the nest, and about 5 p.m. two others joined it, when a great chattering ensued, and was maintained till dusk; finally these two young ones settled down to roost by the nest. But the adult birds and their first-born roosted in a corner of the wood at the far end of the lake, where they could however keep an eye upon their nursery. This youngster now showed white on the breast, and looked very conspicuous against a background of fir branches. Both parents seemed very pleased with their firstborn, and sat side by side encouraging it to take short circular flights above them; each time it alighted they greeted these efforts with approving grunts. The old birds also indulged in much quiet love-making—rubbing their beaks together, and raising and lowering their heads in unison; they kept up these rhythmic movements for a considerable time. A colony of Herons (whose breeding-place was

on the Cormorant island) also roosted in the same corner of the wood, and came in at dusk with loud discordant cries. An Owl hooted and Pheasants crowed, while scores of Wood Pigeons kept up a continuous undercurrent of sound. Amid all these essentially woodland notes, the hoarse cries of the old Cormorants, and the creaking notes of their offspring sounded curiously out of place. As the shadows in the lake grew longer, a flock of Canada Geese flew in, and with a swish and a swirl alighted on the water. I was in my tent about 3 a.m. the following morning (August 4). The Cormorants awoke at 3.30, and the five met on the lake where they swam about for some time. The old birds then flew straight out to sea, while the young went back to the nest and awaited their parents' return at 6 a.m., when they were fed. During the whole of that morning they remained either on the island or flew to adjacent trees, or else played together on the lake; they were fed again at 12.30.

That solitary night of August 3, 1914, I am never likely to forget. I slept on the floor of the hut, with my rubber boots and plate box for a pillow. One's nerves were frayed, there was war in the air, and sleep barely possible. At 2.15 a.m. I left the hut, and in the darkness felt my way to the boathouse, unfastened the boat as quietly as possible, stowed my camera inside it, and punted noiselessly across the lake. When just ahead of the island, the flock of Canada Geese rose shrieking from the bushes, and so startled me that I dropped the punt-pole and nearly fell overboard myself. After that there was little hope of accomplishing anything as the whole avian population was alarmed and alert. However, I landed as silently as possible on the opposite shore, collected my things and stumbled along in the dark, keeping as much as possible to the margin of the lake which showed more or less of a whitish edge. It was a black dawn, one of the blackest I ever remember—one of the darkest in history.

I next stumbled over a sleeping sheep, which after the first alarm rather cheered me up; it was so soft and wet and woolly, and even more scared than I was. It slipped away from under the combined weight of me and my camera, uttering a startled "baa." This was echoed by several more sheep, and effectually aroused the Herons and made them croak and chatter. Altogether my adventure was a failure; the double report of a gun close at hand just before sunrise was the last straw. Having stuck to the tent for three hours, and watched every bird assemble for breakfast on the far side of the lake, I returned to the hut and prepared my own.

I paid my final visits to the Cormorants on August 20 and 21. The tent had been in position since August 3, and therefore I hoped all the birds were used to it. When I reached the lake at 4.30 p.m. it was surrounded by Geese and Ducks, but no Cormorants, though two were circling round the island. I neither saw nor heard anything of them till 7.30, when a party of ten flew steadily in from the sea and quietly settled in the trees. The four immature birds now all showed white against a dark background. Some of them returned to the nest as before, and others to the roosting-place with the Herons. Again however both parents sat bolt upright on a branch, while their family went through various aerial evolutions until dusk. But what were the four strange birds, and why did they come? On a previous occasion (July 28), while two nestlings remained unfledged, six birds were observed "flying high in the sky." Perhaps the one pair of breeding Cormorants considered their unconventional choice of a home a domestic success, and invited others to inspect it. It seemed to me that they always went out to sea for their food supply—at any rate I never saw them take fish from the lake. On August 21 I again slipped into my tent about 2.30 a.m. Soon after 3 a.m. eight Green Sandpipers alighted with merry call-notes close to me

and ran about the sands. They bathed and preened themselves, and chased each other along the water's edge in a way wholly delightful to look at, but terribly galling to the photographer. When the light came and with it the Geese and Herons, these charming little waders flew off to another part of the lake. They were playing round us the night before, but I think must have moved on during the morning, for they were not in evidence after dawn. The whole Cormorant family came down to bathe with the Geese about 8 o'clock, and then went away. In all probability they spent the greater part of the day by the sea, and retired to the lake to roost.

XXIV
THE SWAN

CYGNUS OLOR (Gmelin).

AS Swans have been intimately bound up with my houseboat life, I cannot conclude this book without some account of their general habits, and a more detailed history of those individual birds which have honoured me with their friendship.

Like so much that is merely romantic and picturesque, many of the old customs connected with the annual catching and pinioning of the young Swans, known as the "Swan Upping," have become obsolete. In many places no one takes the trouble to pinion them at all. This is of course a distinct gain to the Swan, and also to the bird-lover, because now that these beautiful birds are unpinioned they roam from Broad to Broad, and the sound of their going, and the sight of their glancing wings, and the excitement of seeing ten or a dozen alight on the water with a splash and a swirl, constitute a new thrill. For the Mute Swan is just as beautiful as his wilder brethren, although lacking the touch of romance and the breath of the wild wind, which are the usual accompaniments of the Bewick and the Whooper who—

"Over perilous wilds of Northern seas,
White wings above the white and wintry waves,
Have won through night and battle of the blasts."

For the photographer there is the additional joy of continually—and unsuccessfully—chasing these flying Swans round the Broad in punt or dinghy, in the vain endeavour to secure a photograph of them on the wing.

Away over the marshes one catches a glimpse of what appears to be a line of milky-white foam drifting over the reed-beds. Soon this takes shape as the Swans advance, and if one's ears are quick to hear, the noise of their rhythmic wing-beats may be heard a mile away—a clear distinct sound, like the hum of a musical humming-top. One rushes for the camera, and either it is not loaded or the long line of birds advancing in open formation swerves and is out of range. For they are wild, these unpinioned birds, having been born free; and freedom even with its inevitable struggle for existence is better than serfdom, though the badge of ownership engraved on the Swan's bill may be the most elaborate that heraldry can devise.

They look very beautiful, some of these ancient "Swannes' Merkes," when painted in red and black on vellum rolls golden with age. Norfolk is rather rich in such Swan Rolls. Whether the Swan found the engraving of these designs upon his live bill an altogether pleasant process is doubtful.

Tucked away in one of the oldest and most picturesque corners of Norwich is a "Swan pit" over six hundred years old, where Cygnets are annually fattened for the table. In its modern tidiness it rather resembles a swimming-bath. Here the doomed birds in their sooty plumage, well fed, contented, knowing nothing of the future nor

of the Aldermanic dinners, waddle round its edge or play in the water. They seem quite happy—at any rate, they sing no “dirge-entangled hymns” lamenting their own early decease.

The little bands of Swans which rove about the Broads are mostly immature birds. During the long period of the autumn moult they lose some of their unapproachableness owing to their semi-helpless condition.

During July and August, 1914, a young female Swan, one of a band of ten unpinioned birds, elected to patronize my bay and island all the while she was moulting. At times she became a nuisance—infringing the laws of hospitality by teasing the dogs, and stealing food put out to attract the Coots. No sooner was our own meal spread than she would land and help herself to whatever was within reach, and remove the knives and forks from the table. As most of our meals are served out-of-doors, it was one person's business to keep an eye on “Jenny.”

She appeared to be shedding the remains of her juvenile plumage, and in consequence had various admirers. These she took on trial one by one, for a few days at a time. Three unfortunate suitors were encouraged and summarily dismissed during one fortnight. These young males never ventured close in, but the one in favour would hang about the bay calling to her, and waiting until she chose to turn her fickle attention from us to him. As a rule Jenny spent the night inside the bay, attended by her swain. Suddenly, with very little apparent reason, she would turn on her companion, rush at him, and literally beat him out of the bay. Then followed a few days of solitude, after which she would bring another suitor. And so she flirted with first one and then with another until her new pinions grew strong, when she rejoined the main band. If Jenny's behaviour is any criterion, considerable latitude seems to be allowed the Swan youth of both sexes before their final choice is made. She, at any rate, did not intend tying the irrevocable knot without some previous experience of her future lord!

In June, 1915, a fine pair of Swans appeared in the bay with three newly hatched Cygnets. I was much struck with the size and general appearance of the male bird. He was the finest specimen I had ever seen. Both birds were unpinioned, which doubtless accounted for their grace and beauty. There was something familiar about the female. She seemed more or less at home and her manners were free. One day, when preening her wings, I recognized her identity by a certain mark. She was Jenny, and inordinately proud of her mate and family. Being unpinioned, this pair roamed further afield than is usual with tame Swans. They were very careless of the little ones. If startled, the parents flew away leaving the Cygnets to follow in their wake. Therefore it was not at all surprising that before the end of a fortnight only one babe survived. This carelessness may have been due to inexperience only; but it also was, I think, owing to the fact that the old birds were much wilder than the pinioned Swans which have hitherto nested near me. After all her vagaries of the previous autumn, Jenny had at any rate chosen well as far as beauty was concerned.

Swans choose their mates in the autumn and pair for life. As a rule they do not breed until three years of age; the male is known as the Cob, and the female as the Pen. They openly display considerable affection for each other at all times and seasons, and have a love language of their own, which consists of curious little grunts. If one or the other is in distress, it throws up its head and calls with a loud trumpeting note, and this at once brings the other bird to its side. When angry they emit a loud

hissing note, and the odour accompanying it is very unpleasant, reminding one of an escape of acetylene gas. They are very jealous of any infringement of territory.

The nest is a huge structure, composed of a mass of dead reeds and sedges. It measures from five to six feet across, and when placed amongst the thick reed-beds, it may be two feet in height. Both sexes share in the building; but the Cob does the rough work such as cutting down, or tearing up thick stalks of aquatic vegetation, while the Pen shapes and arranges them. The Cob hollows out a depression for the eggs by sitting on the nest, and pressing out the sides with his breast, often using his tail as a "hand" in giving the finishing touches.

Young females only lay three or four eggs the first year or so. The largest family I have ever seen conducted round Hickling Broad consisted of eight Cygnets. Incubation, in the case of the nests I have watched, takes not less than thirty-six days. When the Cygnets are hatched the Cob will sometimes flatten the nest, or else pile up rubbish on one side, so as to make a sloping path by means of which the little ones can readily climb up and down.

Two pairs of Swans nested one year on a small lake, but as far apart as they could. After days of continuous rain the water began to rise and threatened to swamp the nests. One pair immediately set to work and raised their nest, and so saved the situation. But the other Swans were helpless under the stress of circumstances and lost their all. I believe they were younger and consequently less experienced birds than the first pair.

The Cob is always the very essence of chivalrous devotion to his wife and family and fearless in their defence. A really angry male Swan is a fine sight. Some years ago Alfred Nudd punted me up to a brooding female, as I wanted to photograph her. The male was over at Hickling Staithe, a quarter of a mile away. When I stood up in the punt, he caught sight of me. As I approached the nest the Pen stood with uplifted wings and hissed loudly, moving her head restlessly from side to side, as if on the lookout for her natural defender. Finding he did not come, she raised herself still higher and trumpeted loudly. Away over the Broad there appeared a vision of offended majesty. In less time than it takes to tell the Cob sped over the quarter of a mile leaving a pathway of seething water behind him, as he half-flew and half-paddled across the water. Directly he hurled himself on to the nest his mate subsided and left the issue with him. The blows he aimed at the quant were violent, and struck with the "elbow" joint. There is no doubt that a thoroughly enraged Swan can deal a heavy blow. To be merely hit with the wing causes no damage, but a properly directed and well-planted blow from the middle joint may do mischief. I have only once been attacked by an angry Swan, and I must own I was glad to be rescued.

In April, 1909, a pair nested inside my bay. For three weeks they caused me no annoyance as I happened to be very busy indoors, and the weather was so bad that I did not punt myself about anywhere. Early in May a tiny Rob Roy canoe was sent me, and one evening I launched myself in this, having only the vaguest idea as to its management. The wind drifted me close to the Swan's nest. Immediately the Cob bore down upon me ablaze with wrath, and began beating the pointed stern of the canoe with all his might, and charging it broadside on with his breast, so that the frail craft swayed to and fro. I was powerless from sheer ignorance, not daring to beat him off with the paddle lest his wrath should be directed against me rather than the canoe, so I sat still. Being on the same level as the bird, I expected to be hit on the head or

on the back. It never occurred to me to shout for help, but eventually my man caught sight of the fray and rapidly punted to my rescue.

After this it was obvious that either I must come to terms with the enemy, or else go warily in my own bay. Various overtures of peace were made, and eventually he was won over with bread. At the end of a fortnight he fed from my hand, and from that time onwards he proudly escorted the canoe in and out of the bay, and honoured me with his patronage and protection. Occasionally his attentions were embarrassing as he liked playing with the paddle; and on more than one occasion his love of amusement nearly upset me. I never quite got over the feeling that the bay belonged to him, and that I was an intruder. He expected a certain percentage of food and invariably obtained it, sometimes at the expense of other people. He evidently liked companionship and someone to play with during the five long weeks while his mate was brooding, and he possessed a considerable sense of humour. His chief delight was to lie in wait on the south side of the houseboat, and the moment I crossed the plank connecting it with the land on the north side he would dart round the corner, seize the hem of my skirt, and do his level best to pull me over. After these unsuccessful efforts, he would arch his neck, and utter a contented sound between a purr and a grunt, which was evidently intended to assure me that no harm was meant. One day he suddenly darted his head in at the open window and seized a cigarette out of my mouth. This trick was not repeated!

Sometimes his mate considered that he paid me too much attention, but the moment she lifted her head above the reed and trumpeted, he answered with a similar call and immediately swam across to her. Sometimes she merely wanted a little attention and some one to talk to; occasionally the nest wanted tidying up. In the evenings she went off to feed for about an hour while he brooded. During the whole period of incubation the female utterly ignored me. When released from her long hours of inactivity she swam rapidly out of the bay, and fed with feverish energy in the open Broad. Sometimes she was absent barely half an hour.

When brooding began the nest was quite open, for the reed-beds were yet golden, and young growth but a few inches high. So whenever I looked out, my eyes rested on the big motionless bird lying there inert hour after hour, day after day; her long neck doubled over her back, her eyes closed, asleep—or perhaps only dreaming. How much did she know and understand? The mystery of the whole thing obsessed me at times. As the long waiting time drew to its close we wondered, my companion and I, what would be the attitude of the female Swan towards us. Would she allow her Cygnets to associate with us or not? We grew quite excited over it.

Eventually, two out of the three eggs hatched, and by that time the nest could only be seen from the cabin roof. Even then we were in suspense for two days, because, owing to the bad weather, the mother continued brooding over the young in the nest. On the third afternoon I went ashore, and upon my return was greeted with the news that the whole family had called at the orthodox hour of tea-time; but they came no more that day. At dawn the next morning I was awakened as usual by the Cob gently tapping on the sternsheets of the boat, and looking up I saw that the family was waiting. The Cob showed immense pleasure and pride by throwing up his head, paddling round and round the Cygnets, and rubbing necks with his mate. After that came the usual demand for bread, and I divided half a loaf between them, crumbling it up for the Cygnets. A sudden murmur of disapprobation arose from the other bunk—"You know that's all the bread we've got." However, the protest

was too late. After that the Swan family came regularly to meals, but the Pen was never quite tame. She accepted our gifts but always under protest, hissing suspiciously, and raising her wings each time she snatched bread from our hands.

The Cygnets were only taken out for short excursions at first, but as their strength increased their trips were extended. During the first six weeks, they were brought back to the nest at least four times a day. After that the periods for repose were less frequent. But as long as the Cygnets remain with their parents, both old and young return to the vicinity of the nest at night.

A final visit was always paid to us at dusk. After supper the Cob escorted his wife and family home, but after seeing them to bed he returned to play with us for a time, and then went off on his own. His joy at being free from domestic cares was not quite seemly. He would bound and shoot through the water, flapping his wings and making strange noises. While the Pen was incubating he always slept by the nest on a heap of dead reeds trodden down for that purpose. But after the Cygnets were hatched, he guarded the entrance to the bay and slept on the Broad, though I doubt if he slept much. No matter at what unholy hour of the night I happened to be crossing the Broad, my boat was invariably met and escorted home by him!

One afternoon, when we were returning from Horsey Mere, we saw a terrible commotion in the Sounds ahead of us—foam and down were flying in all directions, and what seemed to be an inextricable mass of white feathers was gyrating on the water. Two Cygnets were uttering shrill cries at the edge of a reed-bed, and a wrathful female Swan was making ineffectual dashes at the whirling bundle of wrath amid-stream. We soon saw that the head of our family was engaged in mortal conflict with an unattached and very fine male Swan, who considered that part of the Sounds his own domain. Our bird was decidedly getting the worst of it, for his enemy had seized him by the neck and was thrusting his head under water, and paying no attention whatever to the female's wrathful thrusts in defence of her mate. We ran our dinghy into the reeds, beat off the enemy with a quant, and dragged our Swan on board. He was somewhat breathless but soon recovered, so we dropped him into the water, and the united family followed us home. The Cob had recovered his equanimity by the time they reached the bay, but the Pen was still in a rage. She refused all food, and repelled all advances, and generally behaved as if we had been the aggressors instead of the rescuers. Perhaps hurt pride would account for this display of wrath—her mate had come off second best and we had witnessed his defeat!

In 1910 this same pair nested actually *on* my island. I felt a bit anxious when greeted with this news, and wondered if the old antagonism would have to be disarmed afresh. After landing and settling in, I saw the male Swan riding at ease in the bay, and looking enquiringly towards me. I called him and he gradually came near, and at last somewhat shyly took a piece of bread, then hurried to his mate. The next day he was tapping on the boat at dawn in the old familiar way; friendly relations were quickly re-established, and we became even more intimate than before, owing to closer quarters. I was able to photograph either or both birds on the nest: the Pen condescended to take food from my hand while brooding, and during the next three months we derived much amusement from each other's society.

That year there were three Cygnets. Their "dressing" was performed with a regularity, thoroughness, and fervour that was almost religious. No Cygnet was allowed to tuck himself away for a rest unless perfectly dry and clean, no matter how many times in the day they were brought back to the nest. At night the most rigorous

discipline was maintained in these matters. Often a tired Cygnet fell asleep amidst his toilet operations. The old bird ran her bill over him, and if the result of these investigations was unsatisfactory, the youngster was at once prodded up and roused to fresh efforts. When the Pen was completely satisfied with their cleanliness, then the Cygnets were allowed to creep beneath her sheltering wings, and often assisted to bed by gentle thrusts from her beak. The adult Swans never dream of brooding either over their eggs or young without first carefully drying their plumage.

When quite tiny, the Cygnets are carried about on the mother's back; two and even three at a time will then ride at ease. They hoist themselves up by seizing hold of their mother's flank feathers, and sometimes she helps them with her foot. The little silver-grey heads thrust up amongst the white plumage of the old bird look very perky as their owners survey the world from this sheltered position. Half-grown Cygnets are not pretty, as their plumage gradually assumes a dirty grey colour. Nevertheless, they always hold themselves well; their buoyant carriage suggests high breeding, and a certain disdainful turn of the head impresses one with the fact that Cygnets give themselves airs from the very outset of their career.

The Cob oftens goes off by himself when his family is resting, but the Pen can scarcely ever be induced to leave the young. Therefore when the father of the family returned with his brood at midday one Sunday, and without his mate, I thought something must be amiss. By 5 p.m. there was still no female in sight, while the male seemed anxious, continually rearing himself up and trumpeting. Moreover, he paid no attention to my coaxing and refused bread. So I set out in the canoe in order to hunt for the missing bird amongst the reed-beds. Taking a short cut through one, I suddenly met her hurrying along head in air, hissing and scolding. Hearing her mate call she responded, and I followed to see what happened. The Cob left the Cygnets on the island and advanced to meet the Pen at a great pace. When they met much affection was shown on both sides. They rubbed bills, intertwined their long necks, and chortled with joy, then swam home side by side, and were greeted by the Cygnets with shrill pipings. The Pen's plumage was considerably disarranged, and there was an ugly cut on her bill. Further down the Sounds there lived another pair of Swans, with a fine upstanding family of seven Cygnets. In all probability the two females had met, and indulged in "words" concerning the respective merits of their broods; words had ended in blows, and as usual in such feminine contests, the males had wisely kept out of it.

XXV

THE YELLOW WAGTAIL

MOTACILLA RAII (Bonop).

I SHALL never forget the first time I ever saw Yellow Wagtails; it was near Salhouse Broad in April, 1903. Seven newly arrived males alighted on a rond that was ablaze with kingcups. They ran in and out amongst the flowers; their brilliant nuptial plumage, canary yellow, blended harmoniously with the golden chalices of the kingcups, so that it seemed as if a bit of the sun itself had fallen to earth. They were a merry party and filled the air with their liquid call-notes. Every now and again, one or two hovered over the flowers, dancing in the air with legs constantly flexed, and rapidly vibrating tail. Others turned and twisted with indescribable dexterity, catching insects on the wing. Nothing in the shape of a bird could be more in keeping with the flower-decked marshland and the April sunshine; for the birds are as dainty, almost as evanescent in colour, and as alluring as "the uncertain glories of an April day."

In those days Yellow Wagtails were plentiful all over the marshland. Now, alas! they are scarce in most places where formerly several nests could be found in an hour's walk.* Two pairs used regularly to visit the island in the early morning each spring, in order to steal cocoanut fibre from my door mat for the lining of their nests. They were quite unashamed. Their pilfering was indulged in under my very eyes; no secret was made of it. The two males flung their sweet high-pitched call-note at me as soon as they alighted on the island. They were not in the least perturbed when I thrust my head out of the cabin window and spoke to them, but pattered up to the mat, eyeing me after the manner of an impudent puppy when it means to carry off your slippers. Then, seizing a loose strand of fibre, or perhaps several, they flew straight across to the marsh opposite, and soon returned for more. One year I missed the little thieves, and found that I had been jilted for a dun-coloured pony that left lumps of matted hair on various gate posts.

Yellow Wagtails are singularly confiding. The photograph in the illustration was one of the first I ever took of birds in the Broadland. In order to focus the nest I put a handkerchief into it, and retired to my tent. But before I could turn the focussing screw the hen bird returned, flicked aside a corner of the handkerchief, and nestled beneath it. I had to disturb her, but as soon as my preparations were made the cock pattered up to see what was wrong, meanwhile casting a suspicious glance over his shoulder in my direction. Finding nothing radically wrong, he flew off with a joyous cry, and immediately his mate returned and brooded.

One day, at Potter Heigham, in spite of all the gaiety and noise inseparable from a regatta, a family of six recently fledged Yellow Wagtails was hawking for flies round a huge cart-horse that was lazily feeding close to the bank on which a crowd of onlookers (including myself) was sitting. They perched on the great hairy fetlocks of the horse and made these a jumping-off place. If the horse shook itself, the birds

* See p. 29 for cause of decrease.

flung themselves into the air with shouts of glee, and returned to their perch as soon as the big patient animal was quiescent. This went on for several hours, and as the horse did not stray far from the gay scene, I was able to keep the birds under observation all the time. Their parents were never far off either, but they hawked for flies higher up in the air, and left the younger generation to its games.

The male Yellow Wagtail has a sweet but subdued song which cannot be heard at a distance; it is generally uttered as he clings to a swaying plant. Sometimes he alights on the top of a spray and pours forth his little soul to the mate he wishes to win. He seldom sings after the courtship display is over, but his lay may easily be missed, as it is overpowered by the riot of song that makes the marshes ring during May. From the vantage-point of a tall rush he will suddenly fling himself into the air a few feet, and hang over the female as she threads her way delicately through the herbage in search of food. This aerial dance and display is very fairy-like. The Yellow Wagtail is so dainty in shape, and his yellow and green suit so brilliant when he first arrives, that in the quivering sunlight he looks as if he were a part of the shimmering atmosphere and almost as intangible. All the time he hangs in mid-air the wings vibrate rapidly, and the long tail is constantly fanned. The male does not much like being watched while this display takes place, and if conscious of observation he will suddenly shoot upwards and fly off with swift undulating flight. But if you remain quiet, and the hen continues to pursue her own way near you, the cock is bound to return. Even when he is only a speck in the sky, he may be traced by the peculiar ringing call-note; for this, unlike the song proper, carries a long distance, and is constantly uttered when the Yellow Wagtail is on the wing. Round he comes again, flying in wide loops, dipping deep down as it were into the trough of air, and rising on the crest of a high wave. The song and dance begin all over again; if his wooing is successful the hen joins him, and the two fly together in wide circles round and round the marsh.

Yellow Wagtails are very faithful to their old breeding areas. Where the conditions remain unchanged, as on some of the big grazing marshes, nests may be found year after year. There has been a very slight increase in the number of nests in one nearly depleted area during the last two years. This cheering fact is due to efforts that have been made to restore a large tract of ground to its pristine condition, when it was a favourite breeding-place for Waders, as well as for Yellow Wagtails and other species which dislike rank growth. It is to be hoped that this increase will be maintained. There is no bird that I have missed so much during the last ten years or so as the Yellow Wagtail. One of the earliest of our summer residents to return, its advent and its cheerfulness bring more pleasure to the bird-lover than any other small bird that frequents the marshes.

The nest is carefully hidden under a tuft of dead grass, or deep down in the tangle. One year several nests on one marsh had each a small *osmunda* fern standing like a sentinel before it, and shading the brooding bird with its foliage. Now, neither Yellow Wagtails nor *Osmunda regalis* are plentiful in that area.

Though in the Broadland Yellow Wagtails prefer moist ground where the vegetation is scanty, in the Breck country they nest amongst the heather. But the Breck is a law unto itself. On Scolt Head Island I found nests in the *suæda* bushes, (*Suæda fruticosa*). There, again, the conditions are very different from those prevailing in the marshland, for nearly all the salt marshes are under water during the spring tides.



THE MALE YELLOW WAGTAIL RETURNING TO NEST.



THE PIED WAGTAIL, THE USURPING CUCKOO,
AND THE FLOWERPOT NEST.

In late summer numbers of Yellow Wagtails resort to the Broads to roost. Partial migration takes place early in July. Young broods collect together and roam about the marshes; at sunset they may be seen playing round the shallow pools, tripping daintily over the ooze, or running hither and thither after flies. These young broods resemble the females and are greenish-yellow in colour. The males lose their brilliant colouring early in the breeding season, and in the autumn it is hard to believe that these are the same birds whose gay plumage challenged the deeper gold of the kingcups. It is, nevertheless, a pretty sight to see numbers of Yellow Wagtails, whether young or old, playing round a reed-fringed pool; the last gleam of sunlight accentuates the yellow in their plumage, so that the birds stand out distinctly against the darkening shadowy reeds to which they cling. The reeds may be full of various birds, but the gay notes of the Yellow Wagtails can never be confounded with the even-song of other species.

In spring Yellow Wagtails arrive on our shores singly, in twos and threes, and in flocks. Sometimes a few Blue-headed Wagtails (*M. flava*, Linn.) accompany them. This is the Continental representative of our insular species; sometimes it remains to breed, but it is many years since a nest of the Blue-headed Wagtail was found in the Broadland. The male with its blue head and white eye-stripe is easily recognized, but the female is less easy to identify, though her white eye-stripe distinguishes her from the Yellow Wagtail which has a greenish head and buff eye-stripe. In all other respects the two species are akin. The notes are alike, and the nest and eggs can only be safely identified if the male bird is seen near the nest. In Texel where I was familiar with the Blue-headed for three weeks, I found them shy and less confiding than our own Yellow Wagtail. But as my experience was limited, I do not wish to lay this down as a hard-and-fast rule.

In the autumn Yellow Wagtails depart in the same manner as they arrive in the spring. Sometimes large flocks frequent the shore for several days, apparently waiting for suitable weather conditions. One autumn, for three evenings in succession, numbers assembled on the shore; they stretched in a long line as far as I could see; the beach was alive with them. Some stood on the highest shingle ridge, gazing out to sea; they were curiously immobile for such restless birds. Others ran about the beach feeding and chattering. All three evenings the whole flock rose and returned to the marshes to roost in the reeds. They must have departed early on the morning of the fourth day as I saw them no more, and the seashore was the lonelier for their departure.

XXVI
THE CUCKOO

CUCULUS CANORUS (Linn.).

THERE are certain years, and certain weeks in most years, when the Cuckoo seems to dominate the marshes to the exclusion of all other vocalists. In the Broadland its numbers are subject to curious fluctuations. During some seasons nearly every sallow bush of any size seems to contain a Cuckoo, whereas in others (notably in 1914 and 1923) it may be a rare thing to hear more than two or three in a wide area.

It is not my intention in this chapter to deal exhaustively with the Cuckoo, nor to attempt any solution of the mysteries involved in its life-history. I have lived intimately with it on the marshes, and this is merely a record of personal observations made principally in the Broadland, where it is usually abundant. This chapter was written in 1914, and therefore prior to Mr. Edgar Chance's book on *The Cuckoo's Secret*.

The Cuckoo is the very essence and type of spring—beautiful, inconstant, transient. Its call is familiar to everybody, and the first faint note borne down the wind is eagerly awaited by all nature-lovers. Poets have sung its praises or emphasized its vices. But no poetry ever written concerning the Cuckoo is so suggestive of reanimated nature as the old anonymous thirteenth-century ballad:

“Summer is icumen in,
Lude sing Cuccu !
Groweth sed, and bloweth med,
And springeth the wude nu—
Sing Cuccu !”

Although the Cuckoo does not set up housekeeping in the regular orthodox fashion it nevertheless returns persistently to its breeding area, and seems to me to be as faithful to ancestral territory as any species whose conduct is strictly regulated according to the ordinary standard of avian morals. But as the Cuckoo is polyandrous, it is difficult to know whether territorial rights are vested in the male or female—probably in the latter.

In my old home in Kent the middle hedge between two orchards always produced two or more Cuckoos' eggs each year, and these were invariably deposited in Hedge Sparrows' nests. There were other hedges, and other Hedge Sparrows nested in them, but I rarely found that the Cuckoos selected any of the nests in the other hedges. The middle hedge ran from north to south, the others from east to west. One of my earliest recollections as a child is of sitting in a favourite old apple-tree watching a big greyish bird beat up and down that hedge, uttering a queer guttural cry as she did so. When I grew older, I knew that this bubbling note was uttered by the female Cuckoo.

In recent years I always knew which corner of a copse, and often which particular

branch of a tree, was the chosen haunt of a Cuckoo—in this case the male, as he would call loudly from his perch. There were many such haunts within a two mile radius of my home. The males seemed to lie in wait for the females, and chased them with loud cries as soon as they came in sight.

But the courtship of the Cuckoos can be seen to best advantage, and at very close quarters from my houseboat. When the birds first arrive in April, they show a marked partiality for my "park," which consists of some twenty stunted alders and willows, occupying a space about forty feet by eighteen. These were originally planted to shelter E. T. Booth, who at one time pitched a tent on the island, and used to stay there occasionally. In the early morning I have seen three or four Cuckoos together poised on the topmost twigs of these slender bushes. The business that brings them there in the first part of the season is primarily love-making, and the inevitable duels which arise out of this pursuit. Several males will woo one female. One can only judge of their sex by individual behaviour and the call-notes. The males only, I believe, shout "Cuckoo;" the note of the female is the curious gurgling sound already referred to, and often uttered on the wing, especially when she is beating up and down a hedgerow in search of nests. The male has also a challenge call consisting of a few harsh rasping notes rapidly repeated.

It is an interesting and animated scene this of the Cuckoo's love-making, and occurs not once in a while, but morning after morning. I sometimes wonder how the males can obtain sufficient foothold on the twigs to support themselves when engaged in jealous rivalry. Perhaps their peculiar method of perching with two toes in front and two at the back enables them to maintain their balance. Each bird puts such a vast amount of physical energy into his challenge. Lowering his body and thrusting out his neck, he barks defiance at his rival, who replies in like manner. Occasionally a twig does give way, and there is momentary humiliation. When two or three Cuckoos are all wrangling together the commotion is considerable, and very disturbing to the peace of mind of all the well-conducted Warblers in my vicinity; but their movements are extremely graceful, for the Cuckoo is so supple. There is a certain superficial resemblance between Cuckoos and Hawks, but the Cuckoo lacks the noble restraint which always seems to characterize a Hawk's actions.

What is the deciding factor in these contests I am unable to say—only the Cuckoo knows; but eventually the superfluous birds take their departure. Having disposed of these, the remaining male now turns the whole of his attention to the female, who may or may not have held her tongue during these preliminaries. Usually she joins in with various gurgling remarks, but sometimes she stands by without taking much apparent interest in the fray.

The male proceeds to woo her with a series of jerky bows accompanied by a rapid repetition of the flute-like and persuasive double note which we always associate with this bird. It is wonderfully mellow in the early spring, especially when heard at close quarters. It makes one hold one's breath. After all the turmoil and the recent raucous sounds have subsided, there is a curious hush, and the air is vibrant with passion. By-and-by the male puts more energy into his notes; he also expands his wings and tail and seems to quiver with emotion. The Cuckoo appears to be a somewhat fierce lover, whose ardour is violent and short-lived.

Formerly the island used to provide another attraction for the Cuckoo. Not only were there trees in which to make love, but the rough marsh vegetation, before it was suppressed, simply abounded in "woolly bears," the larvæ of the tiger moth

(*Arctia caja*). The Cuckoo is almost the only bird which will devour these caterpillars.

In the Marshland proper, the birds most frequently victimized by the Cuckoo as foster-parents for her young are the Reed Warbler, Whitethroats, Reed Bunting, and Meadow Pipit. Why the Sedge Warbler should less often be selected than the Reed Warbler is somewhat of a mystery. As a rule the nests of the former are much more accessible than those of the latter bird, and certainly provide more accommodation for the overgrown young Cuckoo, who never looks so utterly ridiculous and out of place as when his bulk extends beyond the narrow confines of the Reed Warbler's cradle. But the weight of a young Cuckoo is relatively small, otherwise frail nests such as those built by the Warblers, could not support it. Solid bulky nests like those of the Robin, Hedge Sparrow, and Pied Wagtails, or nests resting on the ground, such as the Pipit's and Reed Bunting's, provide much more suitable nurseries for the upbringing of this little predestined parasite, whose whole life-history is at variance with the higher ethics as understood even by the birds.

Once when I was under a heap of litter photographing Reed Buntings, two Cuckoos alighted on my head. I judged them to be male and female, for one began to cuckoo loudly, while the other uttered the gurgling cry. There were five eggs in the Reed Bunting's nest just on the point of hatching, and as I had pushed aside the intervening rushes, and the brooding bird had not yet returned, the eggs were fully exposed to view. My excitement was great for there seemed a chance of securing a unique photograph, should the female Cuckoo elect to place an egg in the Bunting's nest. However nothing of the kind happened. The two birds carried on a brisk conversation, and stamped on my head with such vigour that all the fine bits of litter were swept into my eyes; yet I dared not lift a finger. I do not know if they were prospecting for suitable foster-parents or not. But if they were, did they know that the Reed Bunting's eggs had begun to chip, and that this was not the nest for their purpose? Who can gauge the intelligence of a species which lives by outwitting other birds? Possibly they were merely amusing themselves. Having scattered most of the rubbish which covered my head, they eventually discovered *me*. The shock was great and they fled in alarm, each bird uttering its distinctive note. I watched them sail over the reeds till they reached a plantation where they alighted on a tree, and stood looking in my direction for a few minutes and then disappeared.

On May 27, 1907, I was shown a Pied Wagtail's nest situated in a very large flower-pot in a cool greenhouse. As the young Wagtails were emerging from the eggs I did not attempt to photograph the old birds. Two days afterwards when I went with my camera, I found a newly hatched Cuckoo in possession; the five little Wagtails had been ejected from the nest and were strewn round the inside of the pot. It seemed rather clever of the Wagtails to have selected this nesting site, and still more cunning of the Cuckoo to have followed them up. The pot contained a large plant of *Hoya carnosa*; its tendrils were very strong and closely trained, there being barely an inch of space between them, except near the top. It was obvious that the adult Cuckoo must have clung to the pot, and inserted the egg into the nest with her bill.* The top lights in this greenhouse were open day and night, so that the Wagtails had free access to the nest, and must have been watched by the Cuckoo.

On June 8, 1912, I was shown a Cuckoo's egg in a Hedge Sparrow's nest in a garden near Horsey Mere. Being anxious to watch the young interloper's early career, I

* In the illustration, the tendrils have been pushed wider apart to show the young bird.

asked the gardener to telegraph when the eggs began to chip. This he did at 9 a.m. on June 10, but unfortunately the message was not delivered till the next morning. When I reached the garden at 3 p.m. on the 11th, the Cuckoo was in full possession of the nest, while one egg was thrown out, and the corpses of the newly hatched Hedge Sparrows were dangling outside. We replaced these, and though the Cuckoo made no attempt to eject them, he nevertheless evinced great activity and squirmed round and round the nest, using his wings as hands, rearing himself up by means of these. Altogether he looked a most repulsive little object in his blind rage and hideous nakedness. The extraordinary strength of the new-born Cuckoo's "hands" must be seen to be believed. He was then only twenty-four hours old. The gardener who took an intelligent interest in the nest told me that the two young Hedge Sparrows were hatched first, and the Cuckoo not until 3 p.m. on the same day (June 10). About 7.30 in the evening, he heard a commotion near the nest, and a harsh guttural cry. He ran to the spot and saw an adult Cuckoo perched on a branch immediately overhanging the dwarf holly-bush containing the nest. Both the young Hedge Sparrows, and the Cuckoo, and the unhatched egg were then safely in the nest. He went again at 9 o'clock, and the young Cuckoo only was in possession, the Hedge Sparrows were ejected and the egg thrown on to the ground. The gardener not unnaturally concluded that this deed of darkness had been perpetrated by the adult Cuckoo, especially as one of the little Hedge Sparrows had a gaping wound in its throat. When I saw it the following afternoon it looked as if its throat had been cut. However, the fact that the nestling Cuckoo ejects his foster-brethren himself, by getting them on to the hollow in his back, which nature seems to have provided for that fell purpose, has been abundantly proved. It is however impossible to say whether the parent Cuckoo takes an interest in her offspring or not. The presence of an adult Cuckoo at the critical moment in this case may or may not have been a mere coincidence. My informant was a man to be trusted, and knew a good deal about birds in general.

As the young Cuckoo develops, his innate selfishness in no wise decreases. He sits complacently in the nest looking the very picture of innocence, and is a decidedly beautiful object when feathered. But if his wants are not regularly supplied, he puffs himself out and makes vicious thrusts at his indefatigable foster-parents. Sometimes indeed, if they bring what he considers short measure, he reaches half out of the nest in order to strike at them. When annoyed, he heaves up and down like a concertina on end, and hisses loudly. He is able to rear himself up some inches. The white patch on the forehead in nestling Cuckoos varies greatly in individual birds.

As I once played the unwilling part of foster-mother to a young Cuckoo, I entertain a strong fellow feeling for all similar victims of Fate. I had to get up at unearthly hours in order to collect a sufficient supply of gooseberry caterpillars, the larvæ of the gooseberry saw-fly (*Nematus ribesii*), for the little Cuckoo's daily needs. It happened to be a season when the bushes were singularly clean, and it took me two hours to gather sufficient for the day.

Unlike most hand-reared birds, he showed no gratitude or affection, but flew at and struck me with his wings if I did not feed him fast enough. When he was nearly full-grown, I put him in an aviary with the Hawks and Owls. If hungry, he would square up to the Kestrel and hiss at him, evidently expecting to be fed. The stately Kestrel used to look down upon him in mild astonishment, as if he wondered what relation this hawk-like stranger could possibly be. Eventually the Cuckoo slipped through a weak place in the wire netting, and for three days he followed a pair of

Robins about begging for food. I did not see them feed him at all. In fact, the way in which they cold-shouldered this pauper alien, and refused him any of the food destined for their own hungry brood in the ivy, made me feel very sorry for my foster-chick. He had not enough sense to return to his best friend, and my efforts to net him were unavailing. After the third day he vanished, but I doubt if he ever saw tropical Africa. Even when fully fledged, young Cuckoos seem quite unable to feed themselves. They may frequently be seen in the first and second week of August still dependent on their foster-parents for food. I saw one on August 7, 1913, being fed by Meadow Pipits, although it was quite strong on the wing. Mr. Bird saw one on August 8, 1907, being fed by Willow Wrens.

The principal food of young Cuckoos consists of insects and their larvæ. In the Broadland I have seen them feed on flies (*Diptera*), caterpillars, beetles, and woodlice.

The adult Cuckoo is said to be the only bird which will feed on gooseberry saw-fly and hairy caterpillars. They are, therefore, exceedingly useful to the agriculturist. Professor Newstead mentions two examples whose stomachs were distended with the gooseberry saw-fly larvæ. "There was a great outbreak of gooseberry grubs at the time, and, as some of the fruit-growers were under the impression that Cuckoos were feeding on the larvæ, the birds were shot to confirm these statements." Thirteen out of fifteen Cuckoos contained insects directly injurious to agriculturists.*

I have seen Cuckoos working up and down the Kentish orchards which had been planted with gooseberry bushes between the taller fruit trees, and I have known foolish gardeners shoot them, because the mere presence of a bird amongst fruit trees is sufficient to ensure its death!

The only other bird I ever saw attack a woolly bear was a Missel Thrush. I was sitting on a gate at Hickling by the cross roads, watching a pair of these birds feeding young in a garden near. Suddenly one of them alighted on the dusty road, holding in its bill a "woolly bear." He began beating it on a stone, and continued to do so until the larva was turned completely inside out—a process which took several minutes, and was of such absorbing interest to the executioner that he did not mind me looking on. The unattractive and very dirty morsel was then carried to the fully fledged young Missel Thrushes and given to one. I hope he relished it!

The folk-lore concerning the Cuckoo is enormous. Almost every county has its own traditions and rhymes connected with this bird, some of which are universal, and others more or less locally modified. In Norfolk: "To hear the Cuckoo's first note when in bed betokens illness or death, either to the hearer or one of his family." In Chaucer's day: "'Twas a common tale that it was good to hear the Nightingale ere the vile Cuckoo's note be uttered." If this be true, I fear bad luck must dog the footsteps of most folk, for few of us ever hear the Nightingale first, and others seldom or never have the chance of listening to Chaucer's "Good sweet Bird" at all!

* *Food of some British Birds*, pp. 66-68.

XXVII

THE BREEDING DUCK

MALLARD [ANAS PLATYRHYNCHA (Linn.)].

SHOVELER [SPATULA CLYPEATA (Linn.)].

TEAL [QUERQUEDULA CRECCA (Linn.)].

GARGANEY TEAL [QUERQUEDULA QUERQUEDULA (Linn.)].

From troubles of the world
I turn to ducks,
Beautiful comical things,
Sleeping or curled,
Their heads beneath white wings,
By water cool,
Or finding curious things
To eat in various mucks
Beneath the pool,
Tails uppermost. . . .
When night is fallen *you* creep
Upstairs, but drakes and dillies
Nest with pale water-stars,
Moonbeams and shadow bars
And water-lilies. . . .

F. W. HARVEY.

THE four species heading this chapter are the only Duck which can be said regularly to breed in the Broadland. Teal nest very sparingly. Garganey, though they have widened their distribution locally, only just hold their own. Shoveler, though numerous at times in March and April, are certainly not on the increase as breeding birds.

The Tufted Duck has made various attempts to breed from time to time, but with scant success. In 1905 and 1906, nests were found at Worstead, but on both occasions the eggs were destroyed by rats. There was a nest at Hickling in 1913, but the duck forsook it. On July 29 of the same year, a Tufted and five young were seen in the Bure, near Salhouse.

From a photographic view, ducks are seldom worth while worrying about. If only the gaily coloured drakes brooded, then one would not grudge spending endless hours and trouble in the endeavour to photograph them. In most species the duck looks uniformly dull on the nest, whereas the drakes would make gorgeous pictures. All the brooding ducks I have ever visited behaved in the same manner. If they are sitting tight, they will allow anyone to walk up to the nest and look at them.

"But if you go too near
They look at you through black
Small topaz-tinted eyes
And wish you ill."

They seem to have an almost pathetic belief in their own invisibility; but if you once put a duck off her eggs, she may stay away indefinitely. It seems to me that ducks have a sense of smell, for Mallard, Shoveler, and Teal have each behaved in the same manner when I have tried to photograph them. They do not mind the hiding-tent, but directly the photographer is inside they are aware of the fact, and will sit within sight of the nest but too far off to photograph for hours.

I first attempted to photograph the Mallard duck depicted here on May 30, 1910. Her own eggs had been removed, and a clutch of addled ones substituted. At the end of four hours, she had not put in an appearance, so I left the nest and went home.

A second attempt was made the next day, and after three hours of waiting the duck returned, and I exposed one plate. But when developed, there was nothing on the plate! Having other and more interesting work which occupied me till June 28, I forgot all about the troublesome duck. Finding that she was still brooding, however, and having a day or two to spare, it seemed worth while making another attempt. I was very tired too, and the prospect of four hours of sitting still, with intervals for sleep, was not without its attractions for once. But I paid heavily for not being wide awake and attending strictly to business. The duck only remained away an hour and a half. I awoke to find her creeping slowly up to the nest. When close to it she carefully surveyed the situation, and evidently took exception to something. My shelter had stood near her for a month and presented the same front. But to the wary bird there was a difference, or else she smelt me. Suddenly she waddled close to the nest, and thrusting in her bill, raked up four eggs all together—*shovelled* them up, perhaps I should say—till they rested against her breast, then gently assisted them out of the nest. I alas not being fully awake, thought she was merely making a space inside the nest in which to plant her feet before arranging herself on the eggs. Thus I lost my first best chance of a curious photograph. Having raked out the four eggs she seemed in two minds, and unable to come to any decision. After some moments of intent gazing in my direction, she left the four eggs outside, and ventured on to the nest. Every movement betrayed anxiety and indecision, so I dropped the shutter and secured one photograph. With infinite care I managed to change my plate almost noiselessly; however, she slipped off and crouched at a distance. Soon she returned and began pulling down and grass out of the nest, and arranging these materials under the eggs which had been removed. She then waddled slowly up and settled down to brood over the four eggs outside the nest. Meanwhile she seemed anxious about the remainder, and eyed them longingly from time to time. Every now and again she stood up and pulled more down out of the nest to tuck beneath the eggs she brooded. I focussed afresh, and photographed the duck as she sat there looking the picture of indecision. At the sound of my shutter she flew off with a loud quack.

As a gale of wind was blowing all the morning, I had to come out of the tent and remove bits of loose reed which covered my lens. I also put the four eggs back into the nest and covered them with down. I then crept into the tent and waited another two hours.

The tedium of this second vigil was much relieved by the cheerful inconsequence of a pair of Yellow Wagtails. They pilfered down from the duck's nest in the most shameless manner, and carried bits away with joyous cries. Why, I cannot tell. It was late in the season for these birds to be nesting; moreover, they do not use down to line their own nests.



A SHOVELER DUCK : THE REEDS HIDE HALF
HER BILL.



A MALLARD DUCK RAKES OUT FOUR OF HER EGGS,



—AND THEN BROODS OVER THEM.

As soon as the Mallard returned she again removed the eggs. This time they were raked out of the nest singly. In order to accomplish their removal safely, she pushed each in turn under her chin, and guided it down the soft slope of her breast with her bill, thus easing it to the ground. Four eggs were removed in a very few seconds. Her intellect, or her mathematical powers, seemed unable to wrestle with more than four at any time. She then pushed the eggs one by one along the narrow trackway, which most marsh birds make to and from their nests. When about a foot beyond the nest, she collected the eggs together and brooded over them, with her tail towards me. I waited some time longer but nothing happened. The duck did not worry about the six neglected eggs still in the nest. Birds have strange limitations, and these vary considerably with individuals.

As the situation was now dull and uninteresting I went home to lunch, first replacing the eggs in the nest. On my return at 2.30, I found she had once more removed four to the same spot. These I as persistently replaced in the nest. I waited till 5.30, but she did not appear, so after partially covering up the eggs I left her.

On June 29 all the eggs were as usual in the nest and warm. The duck was close at hand, but though I waited four hours on that and the two successive days she did not venture near. Nevertheless she always returned to the nest after I left. She was sitting closely till July 8, when either her patience was exhausted, or the almost unparalleled rise of water for the time of year flooded her out. Meanwhile, her legitimate brood had long been hatched out, and was growing apace under the care of a foster-mother.

The Common Teal is the only bird I ever gave up in despair. This was in 1907. Very careful preparation had been made to ensure my success, and I spent at least four hours daily beneath a heap of rushes, trying to secure a photograph. I failed utterly and humiliatingly. In those days I could only devote about a fortnight in the year to bird photography. These precious days were divided into three four-hour shifts. Between times, cooking and other house-work had to be done. From 4 a.m. to 8 a.m. was devoted to the Teal. Morning after morning the bird crept back and sat *behind* the nest, where she was deeply embedded in the rushes and hopelessly out of focus. If I had then possessed a reflex camera my failure would not have been so complete. On some days I changed the time, but the Teal behaved just the same. On my last morning, June 27, the eggs were chipping and I made one more effort, thinking she would be sure to come back at once. At the end of three hours no Teal was in sight so I went away. Ultimately she scored all round, for her brood hatched successfully, while our combined obstinacy spoilt my career for a year! Possibly another Teal might have behaved with more complaisance, but I made no more attempts, partly because Teal nest very sparingly in my area, and partly for the reasons given above—duck are not worth the time expended in photographing them. They are far more amusing to watch.

I only once attempted to photograph Shoveler on the nest. After several failures, I managed to get into my shelter when the duck was away for her afternoon feed. She came back and went straight to the nest, but when about to settle down, she suddenly took fright. I dropped my shutter as she was moving off the nest, changed my plate, and waited for three hours. As she did not seem disposed to return, I left her and did not trouble her again.

In the early days of bird photography, I always hid beneath a heap of cut litter

when dealing with an extra shy bird. Only those who have experienced this method of photography know the pain it entailed. Lying prone for three or four hours produces intolerable sensations in one's back and arms. After an hour or so these nervous twitchings cease, and a kind of numbness sets in. Add to this the extreme discomfort of trying to see clearly through criss-cross strands of grass or rushes, and you get some idea of what bird photographers endured twenty years ago. It was not really necessary, as one discovered later on. After this Shoveler business, I remember Alfred Nudd gently dragging me to a dry bank and saying: "You'll recover in a few minutes." The reaction was almost more than one could bear without whimpering. But this curious numbness also induced a rare state of mind. One seemed lifted into the very heart of Nature. Mundane things were forgotten, and a mystic feeling of kinship with everything, both animate and inanimate, came over one's senses. The sight of a tiny harvest mouse sitting on my arm and washing its face would bring me back to earth. These various pains and pleasures I generally owed to Duck of various species. They are things of the past; now a comfortable hiding-tent lessens the discomfort of bird-photography. However, I still leave the Duck severely alone, and am content to watch them.

The Garganey Teal I have never tried to photograph. It is too precarious in its nesting to risk disturbing. The Garganey drake is a beautiful bird. When wheeling against a black thunder-cloud in company with a bunch of Common Teal, the white eye stripe and white on the wings show up very plainly. The curious sound it makes in the breeding season has earned for it the name of Cricket Teal. But the sound is more like the grinding of teeth than the chirp of a cricket on the hearth. Often this noise betrays the whereabouts of a Garganey drake, when otherwise it is invisible. A little patient waiting, however, will generally reward the watcher. In a quiet shallow the drake will be seen swimming round the duck stretching his neck, raising and lowering his head, and giving vent to his emotions by producing the curious grinding sound. Like other Duck in the wild state, the Garganey is monogamous. But necessity knows no law. One year a single drake and two ducks returned to the breeding area. Both ducks nested and were about together with the one drake.

In April it is a fine sight to see the newly arrived Shoveler and Garganey drakes disporting themselves in a sun-lit shallow. It is a comical sight too. Sometimes they waddle round the drier parts of a marsh—the Shoveler especially—large plump aldermanic figures, going through clumsy performances, in order to attract the ducks. Sometimes several Shoveler drakes will perform together standing cheek by jowl, raising and lowering their burnished green heads in unison. The broad spatulate bill of the Shoveler adds to its comical appearance, and so does its sharp little yellow eye. The same games take place on the water; two or three drakes may be playing together, but if a duck swims by they go off in pursuit.

Sometimes after pairing has taken place, individual ducks may afford the observer some amusement. Occasionally a duck (of any species) will try to get up a flirtation with another drake, in spite of the fact that her own mate is watching. If the drake whom she endeavours to beguile is already paired, he will resent these attentions, and eventually drive the aggressor off, especially if he is under the eye of his own spouse. Probably it is all a mere game. Most birds have a sense of humour now and then, like all other animals, and the aggressive duck—"only does it to annoy, because she knows it teases."

Mallard begin their courtship very early in the year. In the middle of January,

1923, I found it impossible to sleep on some nights, owing to the tremendous noise made by Mallard. They quacked incessantly from about 10 p.m. till dawn. They rushed about on the water churning it up; and the whistling of their wings as they dashed to and fro in the air, was like the souging of the wind. This went on from January 17 till about February 12. I was astonished at the noise the Mallard made at night, because they were not numerous at Hickling all that winter. They must have come in from neighbouring haunts for the purpose of courting, and perhaps from the sea. If you put up a number of Mallard from the reed-beds near the coast, they generally make a bee-line for the sea.

Throughout the winter when the wind blows from the north or east, the Mallard hide in the reed-beds or frequent the inland waters. But on mild days when the winds are from the south and west, they sit on the sea all day. There are few more beautiful sights than this of several hundred Mallard drakes in full plumage, all idly floating on the blue sea in the sunlight. As well as being the commonest of our wild Duck, the Mallard drake is also one of the most beautiful. It is always gratifying when beautiful things are quite common and free to everybody.

At dusk it is delightful to hide near the Ducks' feeding ground, and watch them come in and drop down with a swish and a swirl on the shallow water. After looking about suspiciously for a second or two, they are soon engaged in producing that peculiarly attractive sound known as "puddling." This is caused by the passing of large quantities of mud and water through the Duck's beak, which is a combined sieve and filter. Although the Shoveler has the largest bill, I do not think he makes any more noise than the small Common Teal; the latter, in addition to the soft sound made by their bills, frequently utter quiet chuckles. Teal are very alert and active, and quick to detect danger. They shoot up into the air with great alacrity when alarmed; circle round, wheel and generally alight in the same spot from which they issued. Most of the day they spend in sleeping with one eye open. There are numbers of Teal round about Hickling Broad in the autumn and winter, yet very few ever stay to nest there. Even by the middle of June quite big bunches of Teal frequent the shallow ponds amongst the reed-beds.

When they are incubating, ducks only leave the eggs in order to feed; this they may do two or three times a day. But when the eggs are chipping, the duck can hardly be induced to quit them. The drakes watch for their mates and accompany them to their feeding grounds, but when they return to the eggs the ducks alight on the ground a little distance from the nest, and walk cautiously up to it. The male Shoveler flies round and round in circles until the duck settles, and as soon as he knows that his mate is quietly brooding he rejoins his male companions. Nevertheless, though several drakes may be conversing together they are always on the watch, and warn their mates of danger. But after the young are hatched, the care of them devolves on the duck, as the drakes are out of condition and beginning to moult.

The first business of the duck after the young are hatched is to get them to the water. It is very difficult to catch even a glimpse of the young for some time after they first leave the nest. The old bird hides them very carefully in the reedy by-ways. They seldom leave the waterways for food, though they are frequently taken over the "walls"* to the sheltered dykes near the Broad. These ditches are unfrequented and full of lush growth, which abounds in insects. Here, too, the downy ducklings are safe from marauding pike. Food also is plentiful. During the first

* In the Broadland, a "wall" means the high bank bordering a dyke.

six weeks or two months the young subsist on insects—gnats, mosquitoes, May-fly, and small dragon flies. Birds of prey, pike, and rats are the principal enemies of young Duck. Coots have however been known to kill newly hatched ducklings.

Every species of Duck is brave in defence of her young, and also exceedingly noisy. When silently paddling along the secluded "roadways," which are really reed-ways, you may suddenly come upon a Duck asleep on a heap of litter, with her half-grown young. In a moment the young vanish, lost among the thick upstanding reeds. But the old bird flaps ahead, feigning injury and squawking horribly. The silent roadway becomes a riot of sound. Warblers and Reed Buntings, which have hitherto eyed your progress tolerantly, break forth into curses. Moor-hens and Coots join in the general chorus of reproaches. When the Duck thinks she has drawn you far enough away, she suddenly ceases pretending and paddles rapidly back. A Garganey duck once pursued me for a quarter of a mile in this manner; unluckily, I had no camera with me. Perhaps the next bend may hide you from view, and as the hot July silence follows in your wake you feel regret for having broken it in this unseemly manner.

Alas for the poor flappers, August and the fateful 1st will be upon them before long. Then good-bye to the undisturbed serenity of the Broad. From dawn to dusk the fusillade goes on, while the Ducks fly in startled bunches from one retreat to another.

After August 1 nothing is quite the same on the Broad. The truce of the breeding season is broken. The cloud of Sand Martins, which at dusk repair to a little patch of reeds near my bay to work there, find shelter elsewhere. The Wild-fowl are unapproachable and take wing at the slightest alarm; one can seldom get near them. For a discordant note has been struck which vibrates through the bird-world and makes it out of tune.

XXVIII

THE HERON

ARDEA CINEREA, Linn.

Oh melancholy bird, a winter's day
Thou standest by the margin of the pool,
And, taught by God, dost thy whole being school
To Patience, which all evil can allay.

LORD THURLOW.

THE Heron is resident in the Broadland and widely distributed. One can rarely look across the wide water-meadows without seeing one or two of these Marsh scouts standing erect and vigilant, ever ready to warn less wary birds of approaching danger.

Probably the largest and best-known Heronry now in existence is the one at Reedham. Many of the older ones have vanished. No Herons have bred at the Irstead Carr for the last twenty-five years, and there have been none at Horning since 1909. The Acle Heronry also seems to have come to an end.

But a few small colonies of Herons have established themselves during recent years in various places, notably at Rollesby and Catfield. The latter Heronry consisted of four nests in 1910, and these have steadily increased up to 1924. Isolated nests have also occurred here and there. A pair of Herons bred at Ranworth in 1910 and brought off four young. Another pair nested near Potter Heigham in 1908, but failed to rear their three nestlings.

It is instructive to read how a neighbouring Heronry in Suffolk (Herringfleet) was destroyed not so many years ago: "All the young ones were killed by one of the gamekeepers *to furnish maggots for the pheasants*, since which time the old birds have quite deserted their nesting place."*

In the sixteenth century the Heron was a dish for the King. Would any self-respecting bird dream of returning to nest in a neighbourhood where it had fallen from such high estate to the level of mere carrion!

Heron may be found in the vicinity of their nesting sites from February to September, but between July and February many rove further afield and resort to the Marshland dykes, tidal estuaries, and the seashore, mainly in search of food.

These roving bands may consist of twos and threes, or of little companies, and during July and August from thirty to sixty may be seen together in the vicinity of Hickling Broad.† Whether these are home-bred birds or continental immigrants it is difficult to say. As a rule overseas birds are not reported at the light station until September, though they have been recorded as early as July 8.‡ Probably many of the Herons found in the Broadland during the winter come from more northern parts of Britain, while some of those reared locally winter still further south.

* *Fauna of Norfolk*, p. 85, footnote by T. Southwell.

† Rev. M. C. H. Bird.

‡ W. Eagle-Clarke, *Studies in Bird Migration*.

The Heron returns to its breeding station early in February, and at once sets to work repairing the old nest or building a new one. It is a busy and noisy scene, this reassembling of the clan after the months of comparative idleness. But when the necessary alterations and repairs are finished and laying begins, comparative calm reigns in the community.

Sometimes the nests are very bulky and appear to have been added to year after year. Those which I have seen in the Broadland are built in trees, not necessarily in large trees or at a very great height. The nest is made of dead branches and sticks, and lined with finer twigs; it is not much more than a broad flat platform, the depressions for the eggs being very shallow. Both sexes share in the task of building.

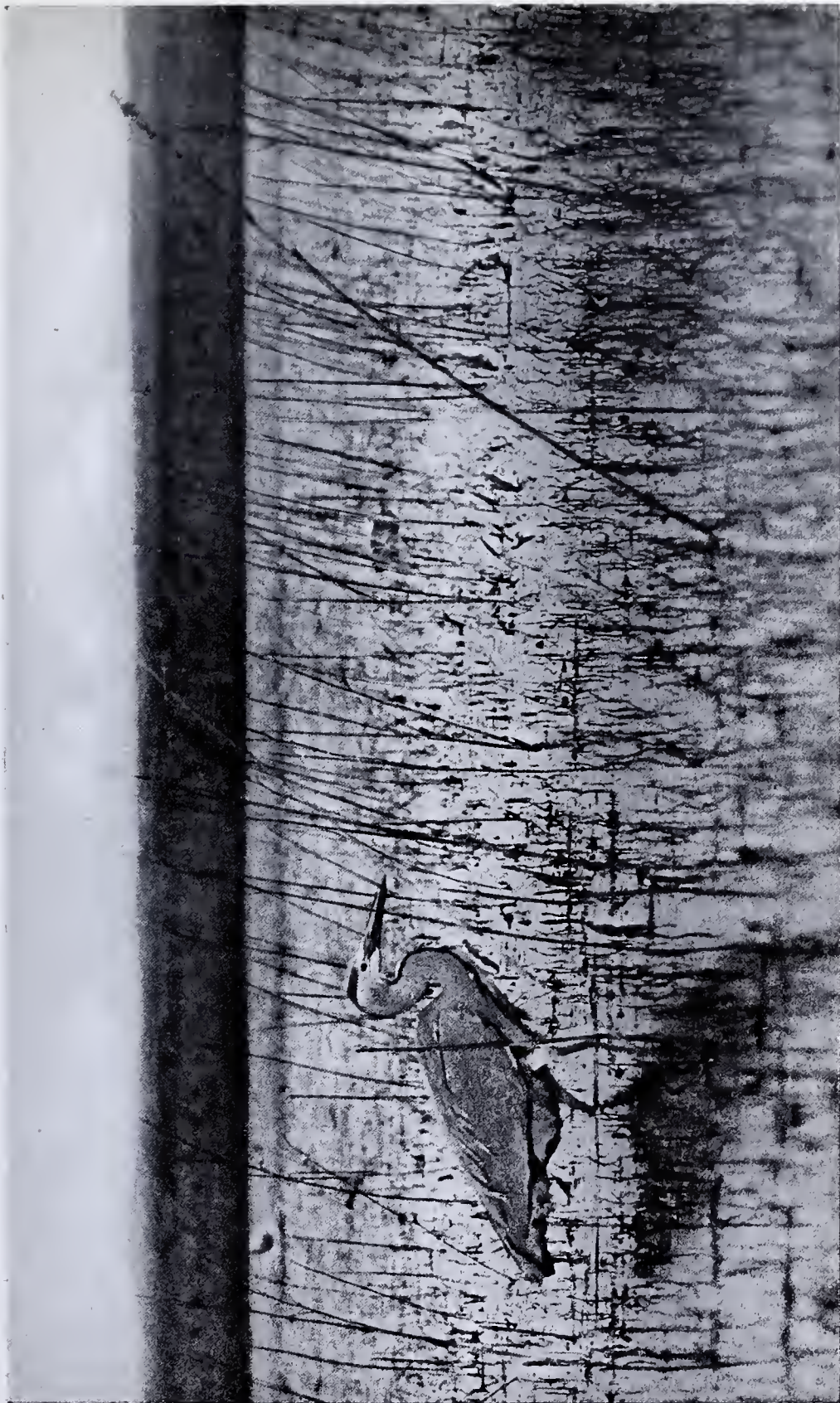
The year 1914 is chiefly remarkable to me, in that I saw Herons nesting on bare cliffs (in the Orkneys), and Cormorants nesting in a disused Heron's nest, in Norfolk. Herons will occasionally nest on the rocks just above high water, and sometimes on the ground near inland waters or in reed-beds.

The young when first hatched are queer surprised-looking birds, most inadequately clothed in long yellow filaments. The female broods over them for some days during which the male brings most of the food; later on they are fed by both parents, almost entirely on fish. The young develop slowly and remain in the nest until fully fledged. They look very quaint and pretty as the soft ashen grey feathers develop, and at the first intimation of a meal they stand up together and await their turn to be fed. They play together at intervals between meals, and crane their long necks over the edge of their nursery surveying the depth beneath, and sometimes drawing back as if alarmed at the distance and darkness. For the most part their attention is fixed on the sky, whence to them comes their food-supply. For as yet they know nothing of the joys of standing in the cool water waiting and watching for the shining slippery prey. Food is brought to them over the tree-tops; where and how procured does not concern them at present. Young Herons are no longer considered table delicacies as they were in Sir Thomas Browne's day—"young hensies being esteemed a festinall dish and much desired by some palates."*

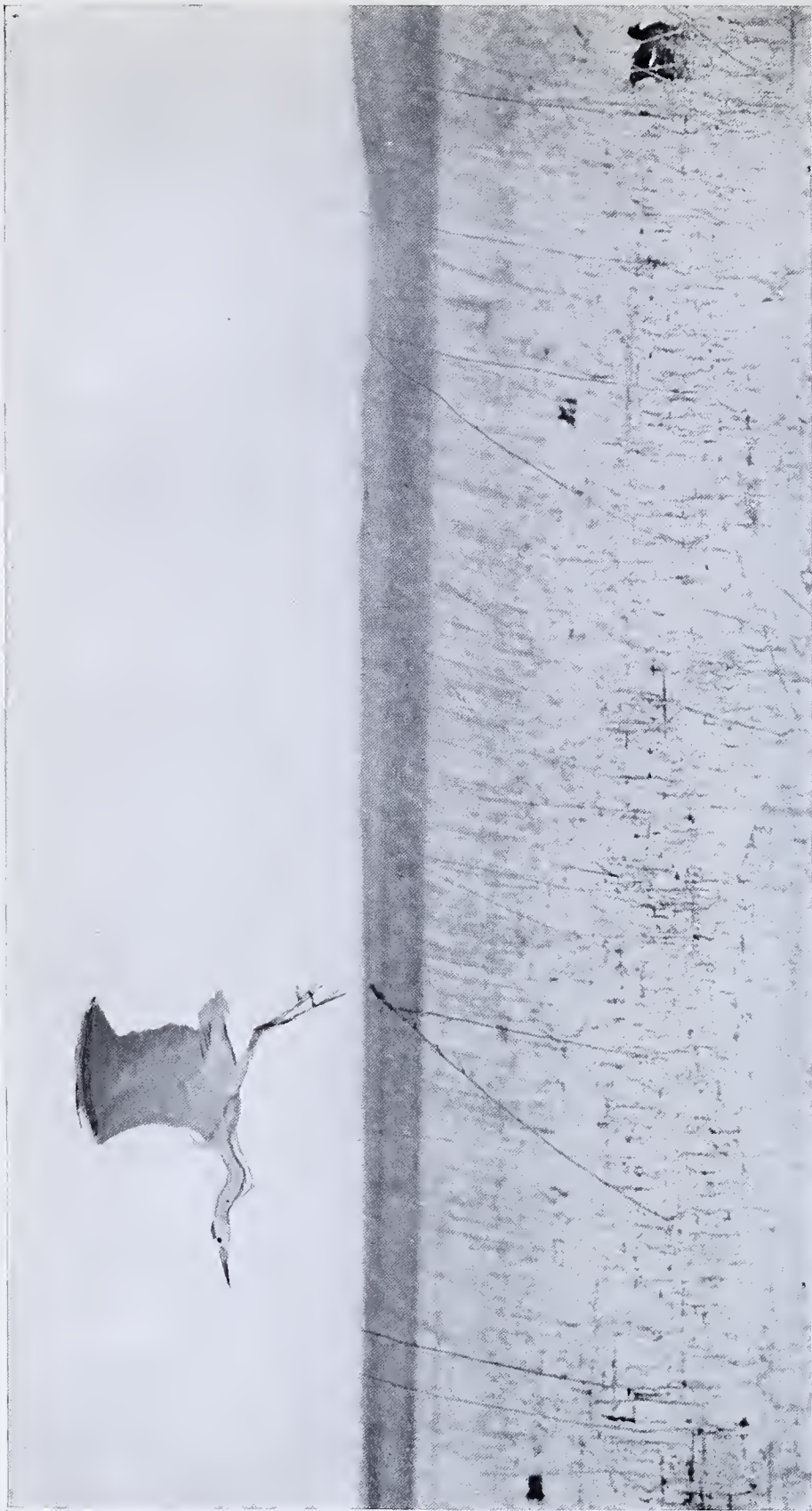
The food of the adult Heron consists of fish especially eels frogs, water-voles, aquatic insects and sometimes young water-fowl; I have also found the bones and fur of the shrew in a Heron's castings. I have often seen Herons in the winter, hunting the mussel-beds on rocky coasts, though I have never actually seen them feeding on mussels. They certainly find abundance of food of some kind amongst the rock pools and shallows. As many of these seashore Herons were migrants, probably their diet is a more catholic one than that of our home-bred birds. During April and May I have seen from thirty to forty Herons in the rough meadows searching for young frogs, which abound at that season in the marshes and meadows adjoining the river.

On May 14, 1908, Vincent and I put up a rough screen of boughs near an oak tree containing an isolated Heron's nest, the one previously mentioned near Potter Heigham. There were three eggs in the nest, and the bird was sitting. Some days later I secured a photograph of her walking along a dead branch towards the nest. But as I had to wait a very long time for that one photograph and the Heron seemed a very shy sitter, I left her until the young were hatched. While I was waiting for her to return to the nest, I was much amused at an inquisitive Starling. It pattered all over the Heron's domain, rearranging various twigs in an impertinent manner,

* *Notes on Natural History of Norfolk*, p. 17.



THE HERON "BY THE MARGIN OF THE POOL."



THE HERON'S "TAKE-OFF."

chattering gaily all the time. Then it sat on a branch overlooking the nest, and made a great noise. This attracted a Wood Pigeon; she, too, alighted on the nest and examined both it and the contents critically: but the sight of the rightful owner sailing majestically over the tree-tops soon put to flight these interfering busybodies.

The young Herons were hatched on May 20, but only lived two days, as some predatory bird carried them off. These isolated and late nests are very interesting, and one would like to know why a gregarious bird and an early breeder should choose to nest in solitude and so late in the season. In 1915 a pair of Herons returned to this same spot, and successfully brought off their young.

The 1910 Ranworth nest I did not see until June when the young had flown. We caught one of the fledglings and photographed it with some difficulty, as it was extremely vicious. Herons strike at one's eyes with their long pointed bills, and are capable of inflicting severe injuries.

Young Herons are fed by their parents until strong on the wing and well able to fish for themselves. Sometimes they stand in little family groups by the side of a lake or stream, silently watching their parents fish, and no doubt being taught the art both by example and precept. Throughout the summer they may be distinguished from adult birds by their uniform ash colour and by the absence of the decorative plume on the head and neck.

During July and August, 1914, I spent several nights close to the Heronry where the Cormorants nested. The Cormorants were in sole possession of the actual Heronry, which was on a tiny island in a lake. But the Herons returned every evening to roost in a wood by the water's edge, where the Cormorants also roosted when they were a little older.

The Herons were absent most of the day, but returned either singly or in twos and threes before sunset. Sometimes they paddled round the lake before finally retiring for the night. When in the trees they became very noisy and took a long time to settle down. There was a great deal of fluttering and changing of perches, and apparently much to discuss. The queer harsh grunting noises which accompany the Heron's downsitting and uprising sound very weird when one is alone with them in the lengthening shadows.

Heron's are extremely vigilant, and it requires much caution to approach near their roosts without waking them. The bird has exceptionally keen sight and hearing, which in a measure compensates for its slow flight. It sees danger afar off and can thus avert it.

When taking wing the Heron is a long time getting under way. From twenty to thirty seconds elapse between the kick-off and the final straightening out of the bird's long legs—time enough for the photographer to make at least two exposures before it flaps out of range. Herons are easily driven off by more pugnacious species. Lapwings and Black-headed Gulls take a keen delight in annoying them. As the Heron likes to enjoy its meals in peace, he quietly beats a retreat when the owner of some few feet of foreshore objects to his fishing in protected waters.

If it chooses to pit its patience against that of the photographer, the Heron can out-Herod Herod. On August 21 I crept into my tent about 2.30 a.m. Before dawn an immature Heron paddled along the water's edge till it came in front of my hiding-place. When opposite the camera lens, it turned its head and simply stared at it. There was something in this calm philosophic scrutiny which won my admiration and respect. When there was sufficient light I dropped the shutter, expecting

of course that the sharp rattle would scare the bird away. Even to my expectant ears it seemed to profane the silent pageant of sunrise. But it quietly waded further into the water, turned and renewed its fixed stare for a few minutes, then discreetly withdrew to a distance. Of course I ought to have known that such a self-contained bird was not likely to be disturbed by the mere rattle of a blind. But the rest of the Clan was wary to a Heron, and although the tent had been up for three weeks opposite their favourite preening and bathing pool, they invariably performed their toilets elsewhere whenever I was hidden inside the tent.

One never gets tired of watching these patient fishermen intent on their craft; they look as if they were carved in grey marble. But suddenly there is the swift rapier thrust, and the glistening victim is seen for a few seconds before being consigned to its doom. Then once again the immobile grey figure in the misty dawn stands relentless as fate and as silent.

The harsh call-note, "Frank, frank," is usually uttered on the wing. It may sometimes be heard on quiet moonlight nights, for occasionally the Heron feeds at night. He is often familiarly spoken of as "Old Franky" in the Broadland, though he is commonly called the "Harnsa."

I have sometimes watched the Heron go through extraordinary aerial evolutions which do not seem to be in any way connected with the courtship display. This latter performance I have never seen. But throughout the summer I have occasionally seen a solitary Heron dashing about the sky, or planing down; tumbling, soaring upwards, and performing all kinds of complicated twists and nose-dives. These evolutions are accompanied by curious guttural cries quite distinct from the ordinary call-note. They seem to be undertaken out of pure joy, and for the performer's sole amusement. This noisy display attracts other birds to the scene; and sometimes a pugnacious Lapwing or Redshank will mob the ecstatic Heron, but it takes no notice of these interruptions. As a rule the birds which try to annoy the Heron keep a certain distance from it. The force which a Heron uses in these aerial evolutions would be sufficient to upset the balance of any ordinary bird if it ventured too near.

The Heron's palmy days are over—if indeed it be an honour to be protected for the sake of being killed! It now leads a quiet and retired life—on the Broadland, at any rate; nesting where it chooses, and taking what toll it likes of the coarse fish which abound in—"The great number of rivers, rivulets, and splashes of water, which makes Hernes and Herneries to abound in these parts."*

* Sir T. Browne, *op. cit.*, p. 17.

XXIX

AUTUMN AND WINTER IN BROADLAND

THE riot and strenuous activity of the breeding season are scarcely past, before the first intimation of that vague unrest which precedes the autumn migration makes itself felt. Even in mid-June the restlessness of some species is apparent.

I often climb on to my cabin roof after dawn towards the end of July in order to watch the Sand Martins. About the middle of the month hundreds of these birds roost in a patch of reeds near. They rise like a cloud and swoop past me, snapping at the myriads of insects which hover above my head. The birds twitter gaily as they hunt for their breakfast. It may be one of those dull dawns which so often herald an east wind in late summer. If so, the insects will not be found very high in the air. But if the sun breaks through, columns of dancing flies rise vertically to a great height. If you stand amidst the Sand Martins with closed eyes, the *rush* of wings and the faint click of innumerable beaks as they close on their prey produces a curious thrill. It gives you a feeling of *rushing* wind charged with electricity. During the autumn of 1915 there was one very much up-to-date khaki-coloured Sand Martin about the Broad.

I never can imagine where these autumn flocks of Sand Martins come from. There are no large colonies anywhere near Hickling. In all probability there are many places where a few pairs breed each year, but those I have visited are some distance from the Broad. Like the Starlings, the Sand Martins must come in from all the country-side in order to hunt and play; and as night falls, to roost in the reeds.

Sometimes after a hot August day, the Broad is smooth and grey like a mirror. Then the Sand Martins skim over the water, so close to the surface that their silvery breasts nearly touch it. They career from end to end of the Broad like tiny arrows shot from an invisible bow.

Sometimes a few newly arrived Sandpipers consort with them—a sure sign that the autumn migration has begun. The shrill call notes of the Sandpipers ring out above the soft twitterings of the Martins like peals of elfin laughter. Both species join in this game of seeing who can dash up and down the Broad in the minimum of time.

On such quiet evenings the ideal thing to do is to hoist sail and drift along the golden pathway that leads into the setting sun. The superabundant energy of the restless birds somehow induces a feeling of listlessness in the human being. At any rate it does in me. Perhaps if one looked deeper, this apparent laziness really springs from an innate love of vitality. They are so intensely alive, these little frail birds.

Earlier in the evening one may come across countless Sand Martins by the roadside. Sometimes a quarter of a mile or so of telegraph wire will hold as many as can crowd side by side along it. But they do not sit still for any length of time. The young have to be trained in endurance, and taught how to keep fit for the long journey south which must shortly be taken. One morning you wake up and find

that the merry horde has departed. The Sand Martin is one of the first summer residents to arrive, and one of the earliest to depart. By the first week in September the number of birds roosting in the reeds is reduced two-thirds. And by the end of the month only a few stragglers are left.

The most wonderful and entrancing influx of Sand Martins I have ever seen occurred on August 1 and 2, 1923. Hitherto their numbers had not been abnormal for the time of the year. We were rowing home from Hickling Staithe about 8 p.m. (summer time), the evening was dead calm and the Broad placid as a steel mirror. During that half-hour's journey we were rowing in the midst of a continuous stream of Sand Martins pouring in from the south-east and skimming just above the surface of the water. They flew right down to the end of the Broad in a slow, purposeful manner. This steady stream continued until nearly 9 p.m. Then suddenly it turned and swept back in incredible numbers, completely enveloping the island and its adjacent reed-beds. Finally, after many complex evolutions, the birds dropped into the reed-beds for the night.

At 5 a.m., on August 2, I was awakened by a sensation of movement in the air. It was full of the Sand Martins wings. I roused my companions, and together we stood on deck and watched the fairy-like evolutions of the birds. Sometimes large flocks flew up from various points of the reed-beds, and rose in the air like swarms of bees, each company twittering gaily. They alternately rose, and dropped into cover at intervals, for an hour. It was as if the reeds had suddenly decked themselves in terminal flowers. As the sun gained power each tiny body turned towards it, and all these white breasts glistened like innumerable drops of dew. By-and-by the Martins broke up into little parties and went about their business. During the afternoon of August 4 I was watching a Hawk soaring high up in the sky. When I turned my binoculars on it, I saw that the upper air was full of Sand Martins which were quite invisible to the naked eye.

Through the evening evolutions of the Sand Martins are similar to those of the Starlings, yet they always seem more dainty and ethereal. They inspire no feeling of awe or vague fear. There is always something sinister about massed Starlings, whereas battalions of Sand Martins are like children at play. Their sibilant notes are soothing, and drop from the quiet sky like gentle rain. There is a suggestion of elemental storm and chaos in the Starlings' evensong.

One of the outstanding features of July is the arrival soon after dawn of numbers of Swifts. They seem to come out of nowhere, but always from the north-east. During the summer I sleep in a boat which faces east. I may be lying more or less awake at dawn, looking at nothing in particular, when a faint cloud will appear in the zenith. This cloud darkens and spreads with amazing rapidity, drops earthwards, and in a few seconds resolves itself into a whirling drift of black Swifts. If I go out and stand on the Island, they swoop past my head in such numbers and so close to my face, that they produce a wave of cold air all round me. They are silent at dawn, and there is something uncanny about their sudden appearance and menacing activities. On any windy day throughout the summer Hickling Broad abounds in Swifts, but these come in a few at a time, and their numbers increase gradually. They are then sure harbingers of a boisterous day. Cubit Nudd used to curse them in no uncertain language and exclaim: "I'd wring all them old devil-birds' necks if I could; they always bring the wind." It was impossible to make this man grasp the difference between cause and effect. But the July Swifts which come in at dawn are not



JACK SNIPE.



A JACK SNIPE PADDLING IN THE MUD.

always forerunners of wind. They come in daily and hawk for flies up and down the Broad. On still sunny days they seem just to pursue their own pleasures. You can see them going through mazy evolutions high in the air, mere specks against the sapphire dome. In the evenings they rush screaming from one end of the Broad to the other until twilight, when they rise in a mass and disappear into the mysterious regions where Swifts sleep. Towards the end of July their numbers fluctuate and gradually decrease, until only a mere handful remains, but a few stay until the second week in August, and stragglers may be seen even later.

At the end of July Great Crested Grebes become restless and take short flights round the Broad, especially after dawn and before sunset. They may still have young which require tending, yet the spirit of unrest is stirring within them. Meanwhile Black Terns begin to arrive, and little flocks of Curlew and Whimbrel pass. Yet on the very day one noted these migrants (July 29) a Grasshopper Warbler's nest was found with four fresh eggs. On August 19 of that same year Swifts were still about; Godwits, Snipe, Curlew, various species of Tern, spotted Redshank, Redstarts, and Spotted Flycatchers, were all on the move. From that time onwards until the end of September everything seems on the move and migration is in full swing. The harvest fields swarm with Chats and the bushes with Warblers. There are arrivals and departures, and local movements; summer residents and winter visitors overlapping, and birds of passage lingering for a while. Yet notwithstanding this general upheaval, the Broadland is strangely quiet. The stress and strain are not thrust upon one's notice. The regular course of migration proceeds in so orderly a fashion that the bulk of humanity is blind to the existence of this great mystery.

Now and again of course it can hardly fail to thrust itself upon the notice of even the most casual observer. On October 7, 1913, my companion and I came upon a sheltered lawn which was literally covered with Ring Ouzels, Redwings, Fieldfares, and other Thrushes. Bad weather partly accounted for this concentration of migratory birds. The wind had blown a gale for two days, and the rain was such rain as only falls during equinoctial gales on the East Coast, and which nothing yet invented will keep out! I doubt if anybody could have seen that army of Thrushes without realizing that something outside the ordinary routine of bird-life was taking place.

By the second week in October the silence of Hickling Broad has given place to new and varied bird notes. Generally at noon, but often in the early morning as well, large flocks of Gulls assemble in order to bathe and preen their plumage. The Broad echoes and re-echoes with their hoarse clanging call-notes. Even that vast sheet of water is flecked all over with down and discarded feathers, and consequently presents a thoroughly untidy appearance, for the Gulls are then moulting. If you sail into the midst of the assembled Gulls, the whole flock rises from the water. The rush of their wings is like thunder, and their loud outcry is deafening. After wheeling round a few times, the Gulls drop down again, churning the water into foam as their feet slide along the surface. Their resting times are of course largely influenced by the tides. They go out to sea to feed, and return to Hickling and Horsey to rest between meals.

At sundown quiet corners of the Broad become packed with Duck. Early in October Pochard arrive. If all is quiet, they are fond of assembling outside my bay before sunset. Here they bathe and preen themselves before settling down to the business of feeding.

When these secluded bays are flooded with red-gold light the Pochard look very

beautiful. They indulge in various games and behave like irresponsible children, splashing themselves and each other in their glee. Their brown heads gleam like burnished copper as they twist and turn in the water. Before the sun sinks below the horizon, there is a brief period during which birds, and water, and reed-beds, seem transmuted into a sheet of molten metal. But when the colour fades away into the twilight, the grey backs of the Pochard drakes are indistinguishable from the grey water.

As night approaches the Ducks begin to feed. Little is then heard of them except the soft plashing of their diving. For the most part, they feed placidly all night. But when the Broad is bathed in moonlight, Duck are more restless. They take fright and change their feeding ground at the slightest suspicion of danger. Pochard and Coot are often found together by day, and at night, if the one is alarmed, the other follows suit. The sound of their departure is like that of a boat ploughing through seething water. The water is whipped into froth by these hundreds of scurrying feet, for none of the diving Ducks rise direct from the water, and Coot do not take wing if they can reach shelter in any other way.

During November the influx of Pochards steadily increases, and by the end of the month packs of from five hundred to two thousand may be seen resting on the water. When they fly numbers of them keep together. It is no unusual sight to see bunches of Pochard consisting of a hundred or more. This species begins to leave the Broadland in February, but is fairly numerous throughout March. A few remain till May, but these are usually wounded birds. I have seen one or two derelict Pochard on the Broad throughout the summer.

Numbers of Mallard and Tufted,* as well as Scaup and Goldeneye, also frequent the Broads. By far the greater proportion of Scaup and Goldeneye are immature birds. Rough weather from the sea will however cause an influx of mature birds of both species. Adult Scaup are more in evidence during March, but by the end of the month both young and old have departed.

Immature Goldeneye arrive early in November and increase up to the beginning of February. The adults arrive at the end of November, and leave at the end of March. There are usually two to six adult Goldeneye on Hickling Broad throughout the winter. These old birds are generally alone. They are sluggish in their flight, and their wings produce a whistling noise as they fly. Some of the immature birds remain till mid-April.

September and October are the principal months for Wigeon. Very few are seen in the Broads during the winter months. But in March flocks of from fifty to two hundred may come in to rest on their journey north. It is during these two months that such numbers of Wigeon are seen at Yarmouth, Breydon, and at Cley.

When the Broads are frozen most of the Duck go out to sea by day, and return to feed in the "Wakes"† at night. But under ordinary winter conditions, the Duck remain in the vicinity of the Broads all day, dreaming away the short hours of daylight in sheltered nooks.

It is worth while getting half-frozen, in order to catch a glimpse of these great packs of Wildfowl as they float idly in some secluded byway. I shall never forget my first introduction to them. It was on a dull December day, windy and intensely cold. A white frost covered the reed-beds, and though the open water was clear of

* See chapter on "The Breeding Duck."

† Channels cut in the ice and kept open in order that the Wildfowl may feed on them.



“Them seem’d they never saw a sight so fair, of fowls, so lovely, that they sure did deem them heavenly born.”—*Prothalamion*.



“THE HOUNDS OF HEAVEN”: WHOOPER SWANS IN FULL CRY.

ice, there was a thin coating in the roadways. It is a delicious sound, that of a boat cutting its way through thin ice. Altogether the Broadland seemed a new world to one who hitherto had only seen it in all the panoply of spring.

Instead of Warblers slipping in and out of the tangled reeds there were numbers of Tits and Wrens, Blue Tits were especially numerous, but Wrens seemed to predominate—perhaps, because they have less control over their feelings than the Tits. The musical chink of the broken ice seemed to rouse the Wrens' worst passions. The thick undergrowth of dead and matted reed-stalks seemed alive with the angry churring notes so characteristic of a Wren in a rage. Food and shelter must be plentiful, for it takes very little cover to harbour a "self-contented Wren," or a tiny Tit. Innumerable larvæ too are found in the dead and decaying vegetation. Perhaps, too, a certain amount of warmth is engendered by the process of decay.

I only saw one small party of Bearded Tits, as the wind was too rough for them. But as the little flock flitted from cover to cover, one realized how completely the Bearded Tits' tawny plumage blends with the golden reed-stalks and fluffy "pokers." A stray Kingfisher darted before us, looking drab and colourless as he shot across the grey water beneath a sunless sky. Apart from the tinkling ice and the scolding notes of the Tits and Wrens, a great silence brooded over the wide horizon, broken now and again by the raucous call of a Hooded Crow, or the sharp "Scape, scape" of a Snipe. But even these interruptions ceased as the disturbers of the birds' peace passed on. By-and-by we left the roadways and started round the edges of the Broad, where there was no ice. By making a slight détour we gradually came within sight of the Ducks asleep, yet ever alive to the slightest danger.

We crouched down in the boat and watched them for some time. A gleam of watery sunshine lit up the bay, and brought out in strong contrast the colour of the various species of Duck—red and grey, green and grey, velvety black and gleaming white. Some of the birds stirred and thought it a favourable moment to preen themselves. There was life and movement for a little while. But the sunlight was short-lived, and as it faded the fitful energy of the Ducks subsided.

Jack Snipe arrive about the middle of September, usually between the 13th and 16th. In 1914 exceptionally early ones arrived on August 29. They are most plentiful during October and November. Many pass on, but some remain all the winter and depart about the second week in April. On their return journey north in March, Jack Snipe are as numerous as they are in November.

In the autumn they come in usually with a north-west wind, veering to the east. They seem to prefer moonlight nights for their migration journey. If they find suitable feeding grounds they will stay for a few days before passing on. Their places are taken by fresh arrivals, and in this manner a sustained stream of Jack Snipe is maintained through October and November. Ever so slight a frost seems to affect their movements, and during hard weather they are very scarce in the Broadland. A severe frost in November will clear them nearly all away for the rest of the winter.

Jack Snipe are very particular in their choice of a feeding ground. On a marsh of many acres they may all be looked for in a few square yards. By day they like to rest on ground where the old sedge has been cut in July, and sprouted afresh about a foot high. Such ground is devoid of undergrowth, and always muddy. Sometimes they resort to the hovers round the edges of the Broad, where the reeds and sedge are short and sparse, and free from undergrowth. They like muddy ground devoid

of tangled weeds. It takes very little cover to hide a tiny Jack Snipe. A few strands of reed or sedge, or a little tuft of short rushes, does this most effectually.

During the autumn and spring migrations other small waders frequent similar ground. Stint, Dunlin, Common, Green, and Wood Sandpipers may be seen feeding with the Jack Snipe. None of these seem to like tangled undergrowth. The Jack Snipe sit very close and will not rise until you nearly step on them. At dusk they move away from their resting places to similar ground not far off. It is curious what a distinction many species of birds make between their resting grounds and their feeding grounds, although there is often no apparent difference in the two localities. In some instances, of course, it is a matter of cleanliness and order. Jack Snipe are said to feed principally at night; but most night-feeders are not averse to diurnal meals as well. In fact, a bird stokes whenever it can in order to maintain its high temperature. The Jack Snipe in the illustration fed at intervals every day between 11.30 and 3 p.m. I once asked the keeper what Jack Snipe really fed upon, and his answer was: "Not having examined the crop of a Jack Snipe must refer you to someone else for a proper answer to the question, but should say a Jack Snipe can get a meal off as small an area of God's earth as any bird that fly."

Certainly the two birds I photographed confined themselves to a very small area in their search for food. They worked up and down the edge of the water for a length of about forty yards. They went to and fro many times over, till the mud was honey-combed as the result of innumerable probings. Sometimes they paddled in the water as far as their height allowed, always probing all the time. Now and again they stopped to rest or to look about. Once one of them had violent hiccoughs. He looked very unhappy for a time, but as soon as the fit of indigestion passed away he resumed his cheerful demeanour. He also began to feed again. I had good opportunities for watching these two Jack Snipe, as the birds were within three feet of my tent for several days. Whatever they picked up was however invisible to me. Often the food seemed to lie on the surface of the mud as they pecked away rapidly right and left, without thrusting their bills into the ooze at all. They probably absorb minute crustacea such as Ducks filter through their beaks.

These two Jack Snipe were in the same spot for days, either asleep or awake. Sometimes one slept while the other paddled about. From their behaviour I judged them to be a pair. They were the only Jack Snipe in that area, therefore their sociable ways may merely have been the result of a winter's companionship. Sometimes the active bird roused the sleeping one by giving it a gentle prod and uttering a low guttural note. So low was this note it barely made itself felt even at that little distance. I last saw them on April 15. Both birds were then in spring plumage; the rich bloom on the feathers became particularly noticeable as time went on.

One of the most impressive sights and sounds characteristic of Hickling Broad in autumn is the army of Starlings which roosts in the reed-beds. It is impossible to convey any adequate idea of the number of birds which assemble there. They seem overwhelming at times. Young birds begin to flock about the beginning of June. As the days run on, the number of immature birds increases. Soon their ranks are swelled by adults, and then by vast numbers of migrants. One could almost imagine that in November the complex migratory movements of Starlings culminated in and about the Hickling reed-beds. Or it might be a huge international port, where the conflicting streams of immigrants sorted themselves out before continuing their wanderings. I have seen the line of Starlings as viewed from my house-

boat stretch from Potter Heigham Church on the south to Hickling Mill on the north-west, a distance of five miles.

One never tires of watching their marvellous evolutions—the extraordinary coiling and uncoiling of the long sinuous line; the effect of light and shade as the serried ranks close or extend. The psychic moment is as they wheel, when for a few seconds the whole mass becomes invisible, and then reappears as a dense black cloud. It is the absolute obedience to law, and the unity of impulse, that so strongly appeal to the imagination when watching the Starlings' sunset evolutions. There is nothing primitive about this, it is the outcome of the discipline of countless ages. Suddenly the whole mass drops into cover, and as the sun dips below the horizon there rises from a million throats an evensong that fills the sky. Then there is silence. This subtle blending of raucous notes into a great harmony seems to appeal to the imagination more than the thunder of the Starlings' wings; for the latter is purely mechanical. Now is the moment to paddle silently across the water and put them up. A shout or the rattle of an oar will do this. With a roar like that of big guns, the whole army rises and absolutely shuts out the sky for a few minutes. Then the Starlings slant down into cover, and again there is silence. There is, as I have said before, something elemental and awe-inspiring in the sound produced by these millions of Starlings. My little dog, crouching in the boat, will creep close to me and press against my knee. Children have sometimes thrust a timid hand into mine, whilst listening to the sustained evensong.

At sunset the Starlings come in to their roosting place in little bands. They arrive from all points of the compass in twos and threes, or in small detachments. Sometimes these detachments meet on the way, and form a battalion. So in half an hour or so, the vast army is massed. But at dawn they all rise up together. It may be that reveillé is sounded by some bugler—who knows? The thunder of their uprising generally wakes me. It also rouses all the bird-life in the immediate neighbourhood. But the Starlings are away before the other birds have had time to shake and stretch their wings. The dense black cloud hovers for a few seconds over the marshes and then dissolves. Party after party disentangles itself from the general mass, and goes off in pursuit of business or pleasure till the evening.

At dusk throughout the winter skeins of wild Geese come in to feed. They are irregular in their movements. Sometimes night after night the air resounds with their hoarse cries; then perhaps none put in an appearance for weeks together. All night when they are feeding, their voices break the cold and death-like stillness of the winter darkness. In the misty dawn they rise with a great uproar and return to their resting places some miles away.

From December to February the conditions of bird-life are stationary throughout an ordinary winter. Of course, a spell of late frost causes considerable variation in many ways. Food becomes scarce, or it is difficult of access, and so the bird population is compelled to move on or risk starvation. When possible, "wakes" are cut in the ice and kept open, so that the Duck may be fed. Then many Wildfowl congregate in these places and pick up what food they can. But really hard winters are few and far between.

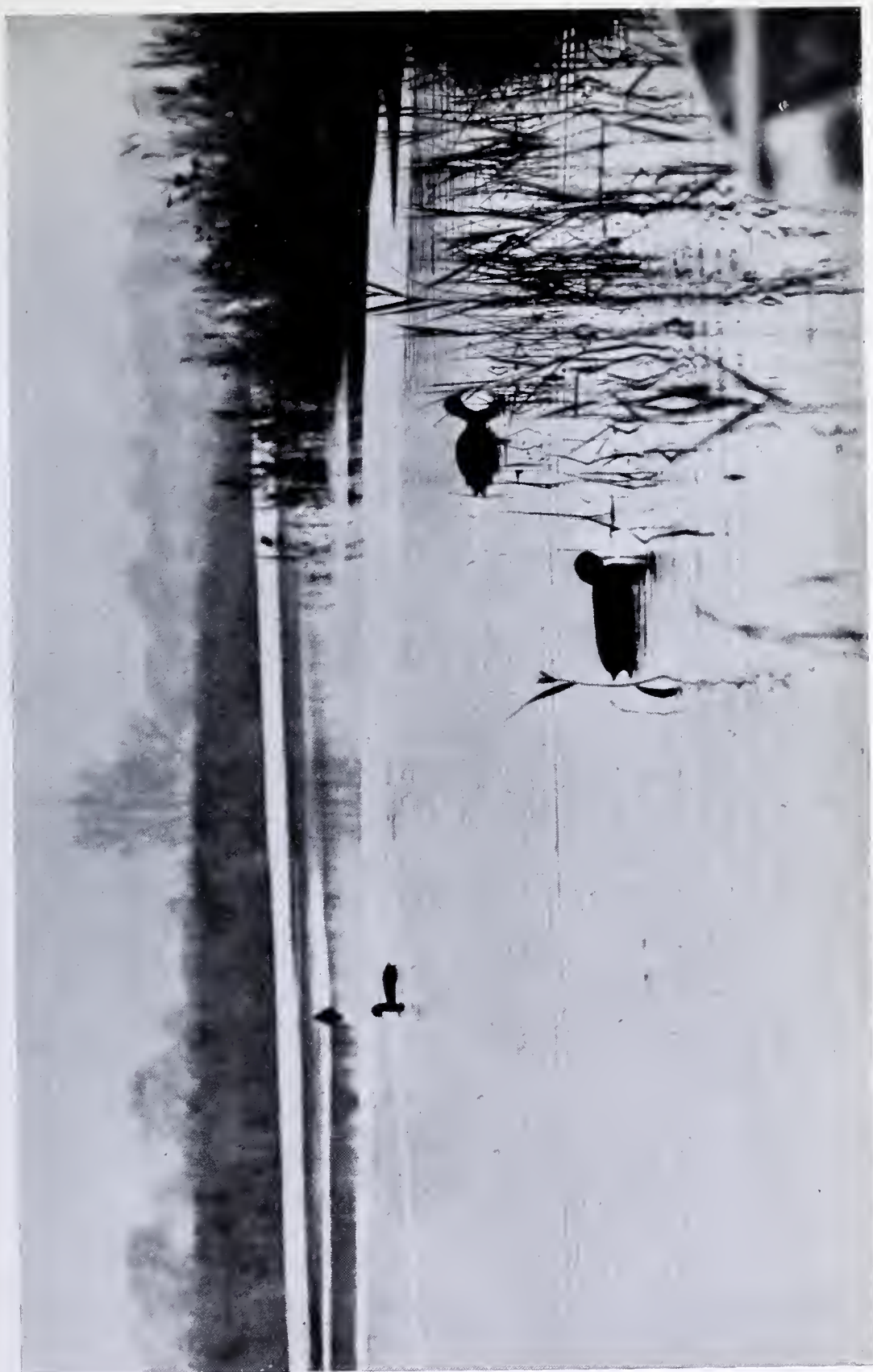
The charm of the Broadland in summer appeals to many a person; but few people, except the ardent gunner and heroic pike fisher, haunt this district of mysterious meres and marshes in winter. Yet its beauty is equally great, and for the real nature-lover who worships every mood of his goddess, the cold aloofness of winter

has a peculiar charm. When the fire of autumn dies down and the glowing copper of the reed-beds changes to cold grey; when bitter winds rattle the dry reed stalks, and cold mists enshroud the marshes, the outlook may seem dreary. But during any stray gleam of sunshine the fires rekindle, and when the low level rays of sunset linger caressingly over the reed-beds they respond with glowing colours. Even when rain falls with relentless steadiness all day the coarse marsh vegetation takes on wonderful colour, for the uniform cold greyness as it becomes more and more sodden, changes from grey to brown, and from brown to reddish purple.

Perhaps for days together the silence is such that it can be felt. There are degrees even in silence. There is the quiet of the spring night just before the birds begin matins—a palpable silence when if you listen hard enough, you can believe that you hear things grow. There is the silence of the summer nights, when the birds, wearied with days of strenuous toil, sleep until the needs of hungry broods rouse them to renewed efforts. There is the autumn silence—the deep sleep that enfolds worn-out nature. But during a hard frost, when the restless water lies imprisoned beneath the ice, and the withered reeds stand like mute sentinels, the stillness is that of death, and one stands as in the presence of death, reverently and with bowed head. I have only had experience of one hard winter at Hickling, when I was alone there most of the time between November 1923 and April 1924, and the absolute silence of a winter's dawn struck me profoundly. It seemed almost profane to break this silence, and I often found myself getting breakfast stealthily with no rattle of crockery, as if someone were asleep in my cabin whom I feared to wake. This feeling wore off as the day advanced; but I doubt if anyone can watch the pageant of dawn, under any circumstances, without emotion—a primeval stirring of the spirit, which is the inheritance of ages and the basis of worship.

By-and-by my dogs—healthy Philistines—would stretch and yawn and, after regarding the prospect with an eye to business, they would dash out and career madly to and fro in the rime, and come back smiling into the warm cabin. There is something about frost and snow that makes terriers hilarious. As soon as it was light my pensioners came shyly in—a Robin, a hen Blackbird, several Sparrows, a Blue Tit, and the inevitable Coot, of which more hereafter. The Goldfinches and Long-tailed Tits vanished with the first touch of frost. The hoarse croak of the Hooded Crow and the plaintive note of Redwing calling to Redwing were almost the only bird notes that could be heard. The Duck stood silently on the edges of the wakes or swam about in the open water, looking the reverse of cheerful. At no time during the winter could I get near enough to photograph the packs of Wildfowl which frequented these wakes, for the broad was never completely frozen. Sudden thaws set in at inopportune moments—for me.

The November frosts broke quite suddenly. A southerly wind accompanied by torrents of rain, set in early one morning. All day long the gale raged, and I had to lace my awnings completely round the stern sheets of my boat. Throughout the day, above the din and uproar of wind and rain, and water thundering against my boat, a thin treble note made itself heard. It was like the tinkle of a little silver bell at the Elevation of the Host. The sound puzzled me until dusk, when I was able to venture outside. I then found that the partially thawed entrance to the dyke in which my boat has been lying all the winter was choked with broken ice which the wind had driven across the Broad. It was the chinks of these thin blocks of ice which made the little silvery sound.



EARLY WINTER AND A FULL LARDER.



FOOD GETTING SCARCE.



ICE ALL ROUND, AND NEARLY SPENT.

At sunrise the following day, men with lighters tried to force their way through the block. The sharp edges of the broken ice were dulled as the thaw had melted them down, but the whole mass was impenetrable except for a little way. It was perhaps fortunate for my houseboat (which has seen twenty years of service, and is very leaky) that the ice drift stopped short where it did.

At the beginning of the winter three Coots frequented the water round my boat, but after the first touch of frost two of them resorted to the open broad. The one which remained with me all the winter was a weakling. His breast feathers were undeveloped, and consequently his general appearance was ragged and untidy. The adult Coot is one of the smartest of birds in his severe black suit, with his white frontal patch and brilliant ruby eye; but my poor pensioner looked a mere rag-bag at times, and had not even enough energy to rid himself of the icicles which sometimes hung from stray feathers, and tinkled as he walked. He certainly would have died had not his various friends in the dyke fed him regularly. He soon became tame, for often no natural food could be obtained either from the dyke or from the banks, unless we broke the ice and made a wake for him; but these small pools soon froze over, and he had to exist for days together upon scraps. He would consume four or five ounces of soaked bread in a day, as well as refuse from soup stock, apples, and cooked potatoes. At times he was too weak to stand against the wind, and crouched on the ice to peck at his food. Sometimes he sat for hours under the lee of my boat, and every day I expected would be his last. But the frost was variable, and seldom held for more than a few days without a partial thaw. During these intervals the Coot was able to pick up his natural food; but regularly every day, even in quite open weather, he came at dawn and at sunset to be fed. When the dyke was frozen hard I used to hear him slithering along the ice before it was light, and if I did not get up and feed him at once he would patiently wait until his breakfast was forthcoming. Twice he even ventured on to my gangway plank. Birds are ludicrous objects when they try to hurry over ice. They have no more control over their legs than a human being has, but slip and slide and sometimes pitch over. I have seen Robins and Sparrows slide almost into my boat when caught by a sudden puff of wind. This is why the Coot, as he became weaker, crouched on the ice to feed. At the best of times it was difficult for him to keep his footing. When I returned to the boat after a ten days' absence, he received me "with open arms." He was some distance away when he caught sight of me, and came rushing across the ice in a reckless manner, alternately skating and sliding. Then a puff of wind drove him to the edge of the thick ice, and in trying to save himself he fell over backwards, and thus presented his big lobed feet for my inspection.

One day I noticed a wounded Pochard drake hovering near. For some hours he fed along the edges of the dyke. Early in the afternoon I saw the Coot swim up to the Pochard and hold communication with him; then, suddenly, both birds swam hurriedly up to the boat. The Coot gazed hard at me with one brilliant ruby eye and made queer sinuous movements with his head and neck, pointing at the Pochard; but the drake eyed me askance for a few seconds, then dived and came up under the lee of the opposite bank and swam away. The Coot hesitated for a little while and then joined the Pochard. It was just as if the Coot tried to explain to the injured drake that here, by my boat, was sanctuary and food. Unfortunately I was using a long focus lens in my camera, and the whole incident was over before I could do anything. Two days after the Pochard was picked up under the bank, dead. It is

a wonder to me that the Coot survived, for rats infested the banks and Hooded Crows were always on the lookout for weakling birds. When I left him at the end of March, he had recovered considerably, though still a vagabond in appearance. He was rather inclined then to disdain me and my food. Indeed, he had made friends with another Coot, a lame bird, which had been shot in the leg. Sometimes he brought his friend to see me, but when milder weather set in these two birds spent most of their time feeding round the edge of the Broad.

The most thrilling event of the early winter is the advent of the wild Swans. Sometimes as many as two hundred pass over Hickling, and of these nine out of ten will be Bewicks; whereas at Cley-next-Sea, Whoopers usually outnumber the Bewicks. The majority pass on westwards, but a few alight on the Broad to feed and rest; they seldom stay more than two days. Their cries are heard long before the birds appear in sight. It is as if all the Hounds of Heaven were in full cry, hunting down the wind. On they come in wedge formation; the pure white of their bodies is almost as dazzling as the snowfields they have left.

January, 1924, was noted for the great influx of wild Swans. On the 14th I saw seven Whoopers and five Bewicks; on the 18th there were forty-nine, mostly Whoopers. On Sunday evening, January 20, I was leaning out of my cabin door watching the moon rise about 6.45 p.m. and listening to the absolute silence. Suddenly a far-away cry broke the stillness. The moon had not long risen, and a thin transparent cloud hung before it. Nearer and nearer came the deep baying sound, and suddenly a thin black wedge touched the fringe of the cloud, and a flock of fifty-four Swans passed in strict chevron formation across the face of the moon; each bird keeping station. They were flying slowly, their goal in sight, and in a few moments I heard the splash and swirl of the water as they alighted on it. These Swans were nearly all Whoopers; they stayed until February 18. Up to the night of the 18th their numbers varied from time to time; sometimes I counted as many as sixty. From February 18 until March 10 the Whoopers were replaced by Bewicks. It is easy at night to tell which species is dominant in a given area. The call of the Bewick is thin and high-pitched. The Whooper's cry is mellow and flute-like; its notes vary from a sharp "Whoo" to a long drawn out "Who-o-o-oup." Often those long winter nights were alive with sharp metallic sounds, like the clanking of steel upon armour. Wigeon, Mallard, and Teal called to one another, their cries mingling with the hoarse clamour of Geese. But the continuous challenge of the Whooper Swans dominated all other sounds. I remember one night in particular, February 16, when the Swans began to call at 9 p.m., and made sleep impossible until 2 a.m. Besides the loud "Whoop," they often uttered a number of other notes, which seemed to be merely conversational. This was the last night that I heard the Whoopers call. At dusk on the evening of February 18, several Bewicks came in; I heard them pass overhead, their shrill notes betraying them. Soon afterwards a sudden hailstorm bombarded my boat with great violence. Two days afterwards hailstones lay where they had fallen, embedded in the half-melted ice—like large sago in a thin milk pudding. A severe frost set in again that night, and on the morning of the 19th I counted forty-five Bewicks as they flew over me when I was photographing them. On the whole, they are much less garrulous than Whoopers. I was never kept awake by their cries. Their call-notes were intermittent, and they seldom started in unison unless suddenly disturbed.

Both these two herds of Swans frequented the marshes in open weather, but most

of their time was spent on the water. The Broad was never completely frozen over; there were always wakes open in sheltered corners, in which the Waterfowl could feed. The Swans rooted up great quantities of weed—mostly hornwort (*Ceratophyllum*). The stalks were stripped absolutely bare, until they looked like wisps of hay. The fringes of the reed-beds, and some of the lesser waterways were blocked at times with the refuse weed left by the Swans.

These wild Swans did not associate much with the mute Swans. After all, why should they? What have they in common with their pampered relatives, these wild visitants from far-off northern climes? What do the birds of our quiet inland waters know of the fear which drives Whoopers and Bewicks south, and forces them to undertake the perils of migration?

Photographing wild Swans from a rowing boat in an icy wind is an exciting sport, and means a reckless waste of plates. The first thing is to locate the Swans, and then row to windward and bear down upon them. They must rise into the wind, and this first rise is sometimes your only chance of getting a photograph that counts. Possibly the birds may wheel back again; but when once on the wing they go down the wind with all possible speed, and are a mile away while one's frozen fingers are fumbling with the camera. Then the chase begins all over again. Usually at the supreme moment an extra gust of wind hits the boat with fiendish malice and upsets the photographer's balance. Much too depends upon the skill of the boatman who must be one with the photographer and manœuvre the boat so that the Swans as they pass are headed away from the sun. Only on two occasions could we get within two hundred yards of them, for the moment a boat is in sight up go their heads, the birds fall into line, and are poised ready to rise at any moment. They get up more quickly than do mute Swans, being lighter in build and much more buoyant. They make no wing-music—that Æolian harp sound which heralds a flock of mute Swans and can be heard half a mile off over the water. But each bird as it rises utters a note of defiance, a mellow "Whoo, whoo."

On sunny days the Swans look dazzlingly white against the blue water. So they do against the sky, up to a certain point, when they suddenly melt into the blue and are practically invisible. Against the light the long alignment shows up black and is sharply outlined. On some days I was only able to make one or two successful exposures, because the whole flock—some fifty strong—rose and flew steadily out to sea and did not return until after sunset.

The first three weeks of February, 1924, were the coldest of that cold winter. On the 13th a bitter east wind with an edge like a knife raged all day, and quickly "laid the Broad," as they say at Hickling. The Swans stood under the lee of a reed-bed, far out, and packs of Coots mingled with them. One day I tried to approach them from the land, for they made a wonderful picture—black and white against the grey ice. Snow fell steadily and soon covered the ice with a white blanket. The black Coots were sharply silhouetted against the snow; but the Swans were hardly visible. The open marshes provided no cover for me, and as soon as I hove in sight the Coots walked steadily away in that slow, provoking way they have if you want to get near them. The Swans rose in a mass—giant snowflakes which, mingling with the eddying swirl, were quickly enveloped in it. There was no following them on the ice because the water had dropped several inches and was still falling.

On February 17 a partial thaw set in and I was able to get on the water. Two-thirds of the Broad was open water by 10 a.m., but on the south side there was still

a great sheet of thin ice. The Bewicks were feeding in a sheltered corner, but as soon as my boat hove in sight they rose and flew right across the Broad and alighted on the ice sheet. There they stood motionless, like a battalion of soldiers at attention, heads up, eyes front. Knowing that their position was unassailable they stayed there until they chose to move. Then the battalion wheeled and marched in line towards the east; turned right about and marched westwards. They are very smart in their movements, all these wild Swans. When about to rise the whole line is tense and alert. The long taper neck with its delicately poised head, is held stiffly. Whether rising from the land or from the water, they get up in strict order, one behind the other, until the whole herd is on the wing. Then the ranks divide and assume more or less the wedge formation and fly straight to their goal. Wild Swans are most beautiful when with motionless, slightly curved wings they glide down towards the water. If the sun is shining on their snowy plumage they look as if they do not belong to this world. In spite of their dazzling brightness, it is wonderful how quickly they melt into the blue sky and vanish; and in certain conditions of the atmosphere on grey days, it is difficult to see them on the grey water. Never until the winter of 1924 have Swans remained on the Broad; hitherto they had only been counted as passage migrants.

Normally in the Broadland, with the advent of February the spirit of unrest revives. Birds from inland begin to work towards the coast. The Broadland breeding stock also begins to return, and again there is considerable overlapping of species. Some of the winter visitors have already paired and are only waiting the call of the north. Coots begin to quarrel in their vulgar and noisy fashion, and slap the water in order to attract the attention of the females.

From February onwards the boom of the Bittern may once more be heard rolling over the fens;* he has been tuning up for some weeks, but his voice is out of gear till February. Large flocks of Pied Wagtails still roost in the reed-beds; flying high in the air, they too come in little bands like the Starlings. They also go through complicated evolutions at sunset; but inasmuch as the Wagtails are small and unobtrusive, their vagaries attract little attention; nevertheless their light and airy movements are very beautiful. Flocks of Fieldfares and Redwings still wander at large, but only a few will be left by the end of March.

Although throughout March and April the reed-beds show little promise of spring, yet various birds have taken possession of their breeding areas. Some, like the Bearded Tits, are already nesting. April in the Broadlands may be arctic in its climate; yet in spite of snow and sleet, biting winds and flooded marshes, the faith of the birds in the return of spring remains unshaken.

* In 1924 the Bittern did not begin to grunt until February 23, and was not booming properly until mid-March.

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